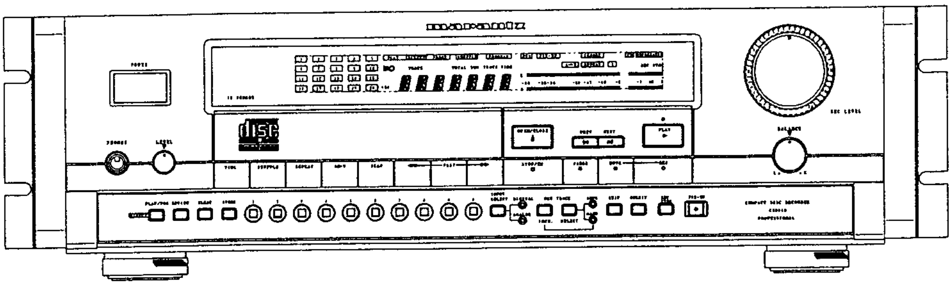
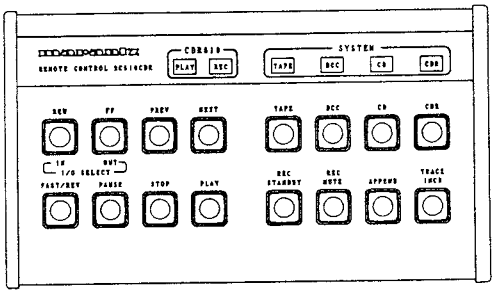
Service Manual

74 CDR610/01B

Compact Disc Recorder




CDR610
SYSTEM
PLAY
REC
TAPE
DCC
CD
CDR
REMOTE CONTROL RC610CDR
REW
FF
PREV
NEXT
TAPE
DCC
CD
CDR
IN
OUT
I/O SELECT
FAST/REV
PAUSE
STOP
PLAY
REC STANDBY
REC MUTE
APPEND
TRACK INCR

This service manual explains them by extracting the different specifications from those of the model CDR610, based on the model CDR1. For both electrical and mechanical information on the after-sales service which is not stated, all information is described in the model CDR1 service manual. V23a355
The dispatch of the parts for after-sales service has to be referred to this service manual, with the first priority.
For this reason, please use this service manual with referring to the model CDR1 service manual.

marantz®

model CDR610

First issue : 1994/2

4822 725 51052

PCS 71 963

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, MARANTZ company has created the ultimate in stereo sound. Only **original MARANTZ parts** can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ equipment are generally available at our National Marantz Subsidiary or Agent.

MARANTZ EUROPE B.V.
P.O. Box 80002
Building SFF 2
5600 JB Eindhoven
The Netherlands
Phone : +31-40-732241
Fax : +31-40-735578

ORDERING PARTS

Parts can be ordered either by mail or by telex. In both cases, the correct part number has to be specified. The following information must be supplied to eliminate delays in processing your order:

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which the part is required
5. Way of shipment
6. Signature: any order form or telex must be signed, otherwise such part order will be considered as null and void.

ADDRESSES

AUSTRALIA
MARANTZ AUSTRALIA
Figtree Drive
Australia Centre
Homebush, NSW 2140
AUSTRALIA

AUSTRIA
MARANTZ
Hietzinger Kai 137a
1130 Wien
Austria

BELGIUM
MARANTZ EUROPE B.V.
Div. Benelux
P.O.Box 80002
Building SFF 2
5600 JB Eindhoven
The Netherlands

CHILE
MARANTZ DIVISION OF
PHILIPS S.A.
Av.Santa Maria 0760
Casilla 2687
Santiago
Chile

DENMARK
MARANTZ
Horsvinget 5
2630 Tastrup
Denmark

FINLAND
MARANTZ
Kuortanegatan 1
00520
Helsingfors 52
Finland

FRANCE
MARANTZ FRANCE
4 Rue Bernard Palissy
92600 Asnières
France

GERMANY
MARANTZ GERMANY GmbH
Kleine Heide 12
Postfach 4802
Halle-Westfalen
Germany

GREAT BRITAIN
MARANTZ HiFi UK Ltd.
Kingsbridge House
Padbury Oaks
575-583 Bath Road
Longford Middlesex UB7 OEH,
U.K.

GREECE
ADAMCO ELECTR. SA
P.O.Box 21025
Hippocratus Str. 188
Athens 11471
Greece

ITALY
MARANTZ ITALIANA SPA
Piazza IV Novembre 3
20124 Milano
Italy

JAPAN
MARANTZ JAPAN INC.
35-1, 7-chome, Sagamiono
Sagamihara-shi, Kanagawa
Japan

KUWAIT
AL ALAMIAH ELECTRONICS
P.O.Box 8196
Salmiah
22052 Kuwait

NETHERLANDS
MARANTZ EUROPE B.V.
Div. Benelux
P.O.Box 80002
Building SFF 2
5600 JB Eindhoven
The Netherlands

NORWAY
MARANTZ
Postboks 7034
Assiden
3007 Drammen
Norway

PORTUGAL
COREL
Av. da Liberdade
211-2 Esq.
1200 Lisboa
Portugal

SAUDI ARABIA
AL ALAMIAH ELECTRONICS
P.O.Box 5954
University Street
Riyadh 11432
Saudi Arabia

SOUTH AFRICA
MARANTZ S.A.
10 Bond Street
Randburg 2194
P.O. Box 7703
Johannesburg 2000
South Africa

SPAIN
MARANTZ SPAIN
Martinez Villergas 2
Apartado 2065
Madrid 28027
Spain

SWEDEN
MARANTZ
Box 1324
17125 Solna
Sweden

SWITZERLAND
MARANTZ SWITZERLAND
Postfach
8010 Zürich-Müllingen
Switzerland

TRADING
MARANTZ TRADING
P.O.Box 20008
Building SFF 2
5600 JB Eindhoven
The Netherlands

All of the above locations are fully equipped to take care of your total service needs or can advice you. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please contact the nearest facility for the necessary assistance.

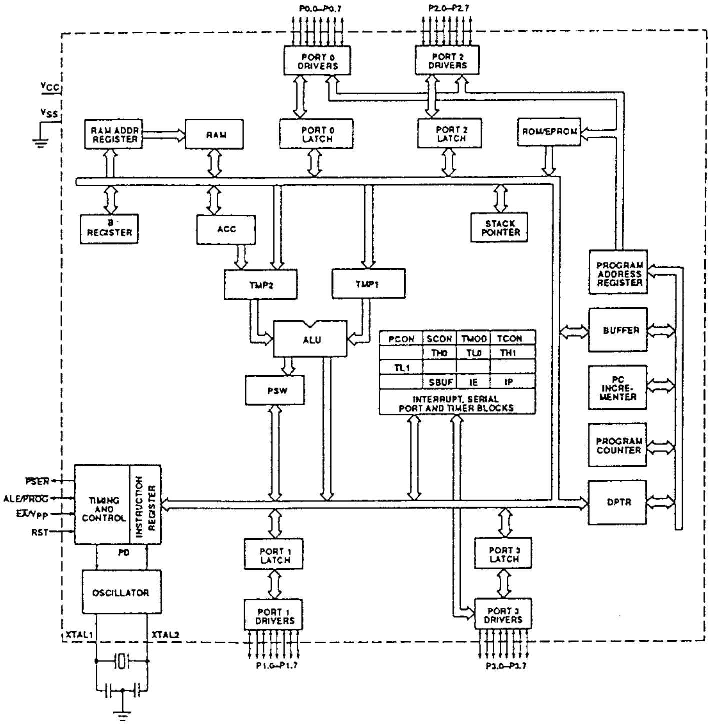
In case of difficulties, do not hesitate to contact the Technical Department at above mentioned address.

SPECIFICATIONS

Sampling Frequency	44.1 kHz
Quantization	16 bits Liner/channel
Pre Emphasis	No or 50/15µs
Frequency Response (record and reproduce)	20 Hz to 20 kHz ±0.3 dB
Channel Balance (record and reproduce)	< 0.8 dB
Harmonic Distortion (record and reproduce)	< .005% (THD + Noise)
Signal-To-Noise Ratio (record and reproduce)	> 90 dB (A-Weighted)
Channel Separation (record and reproduce)	> 88 dB (1 kHz)
Phase Variation (record and reproduce)	< 0.5 degrees
INPUT (Electronically Balanced)	
Impedance	> 30 kΩ
Meter Calibration	
+4 dBu Reference Level	−15 dB on Meter
Maximum input level	+19 dBu (0 dB on Meter)
−10 dBu Reference Level	−15 dB on Meter
Maximum input level	+5 dBu (0 dB on Meter)
Reference Calibration	±5 dB (−10 dB to −20 dB on Meter)
OUTPUT (Electronically Balanced)	
Nominal Output Level	+4 dBu
Maximum Output Level	+19 dBu
Output Impedance	100 Ω
Headphone Output	
Output Voltage	0-6.5 Vrms (no load)
Output resistance	120 Ω
Load Impedance range	8 to 2 kΩ
Digital Input	
XLR	AES/EBU or IEC-958-II (Auto-switching)
RCA	IEC-958-II
TOS Link Optical	IEC-958-II
Digital Output	
XLR	AES/EBU or IEC-958-II (Switchable)
RCA	IEC-958-II
TOS Link Optical	IEC-958-II
Digital Cascade	Direct Pass-Through from XLR or RCA digital input to XLR Digital Output
Remote Control	RC610CDR (RC5 Serial and GPI) RC5 (Serial)
Power Supply	100V, 120V, 220V, 240V ±10% 50/60 Hz
Power Consumption	< 40 Watts
Dimensions	
Width	19 inches (482mm)
Height	5.4 inches (137mm)
Depth	14 inches (355mm)

Specifications subject to change without prior notice.

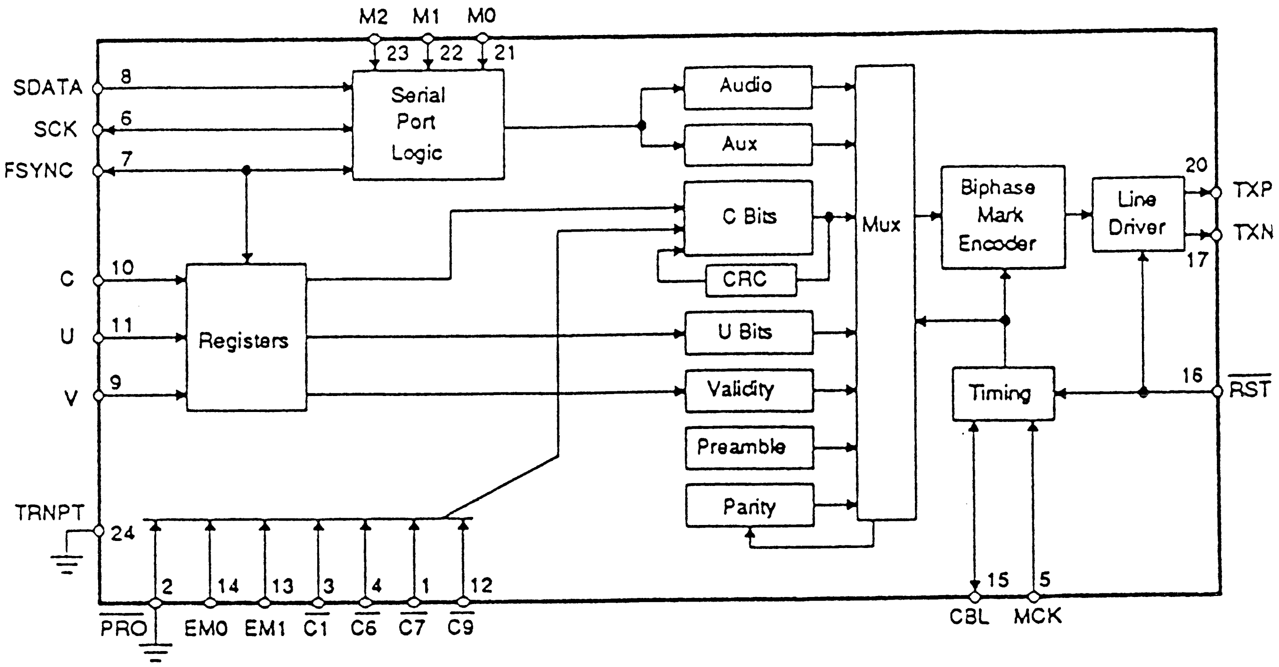
MICROPROCESSOR SC87C51CGN40
BLOCK DIAGRAM


P0.0–P0.7
P2.0–P2.7
PORT 0 DRIVERS
PORT 2 DRIVERS
VCC
VSS
RAM ADDR REGISTER
RAM
PORT 0 LATCH
PORT 2 LATCH
ROM/EPROM
B REGISTER
ACC
STACK POINTER
TMP2
TMP1
PROGRAM ADDRESS REGISTER
ALU
PCON
SCON
TMOD
TCON
TH0
TL0
TH1
TL1
SBUF
IE
IP
INTERRUPT, SERIAL PORT AND TIMER BLOCKS
BUFFER
PSW
PC INCRE-MENTER
PROGRAM COUNTER
PSEN
ALE/PROG
EA/VPP
RST
TIMING AND CONTROL
INSTRUCTION REGISTER
PD
DPTR
PORT 1 LATCH
PORT 3 LATCH
OSCILLATOR
PORT 1 DRIVERS
PORT 3 DRIVERS
XTAL1
XTAL2
P1.0–P1.7
P3.0–P3.7

MICROPROCESSOR I/O PINS AND THEIR FUNCTION

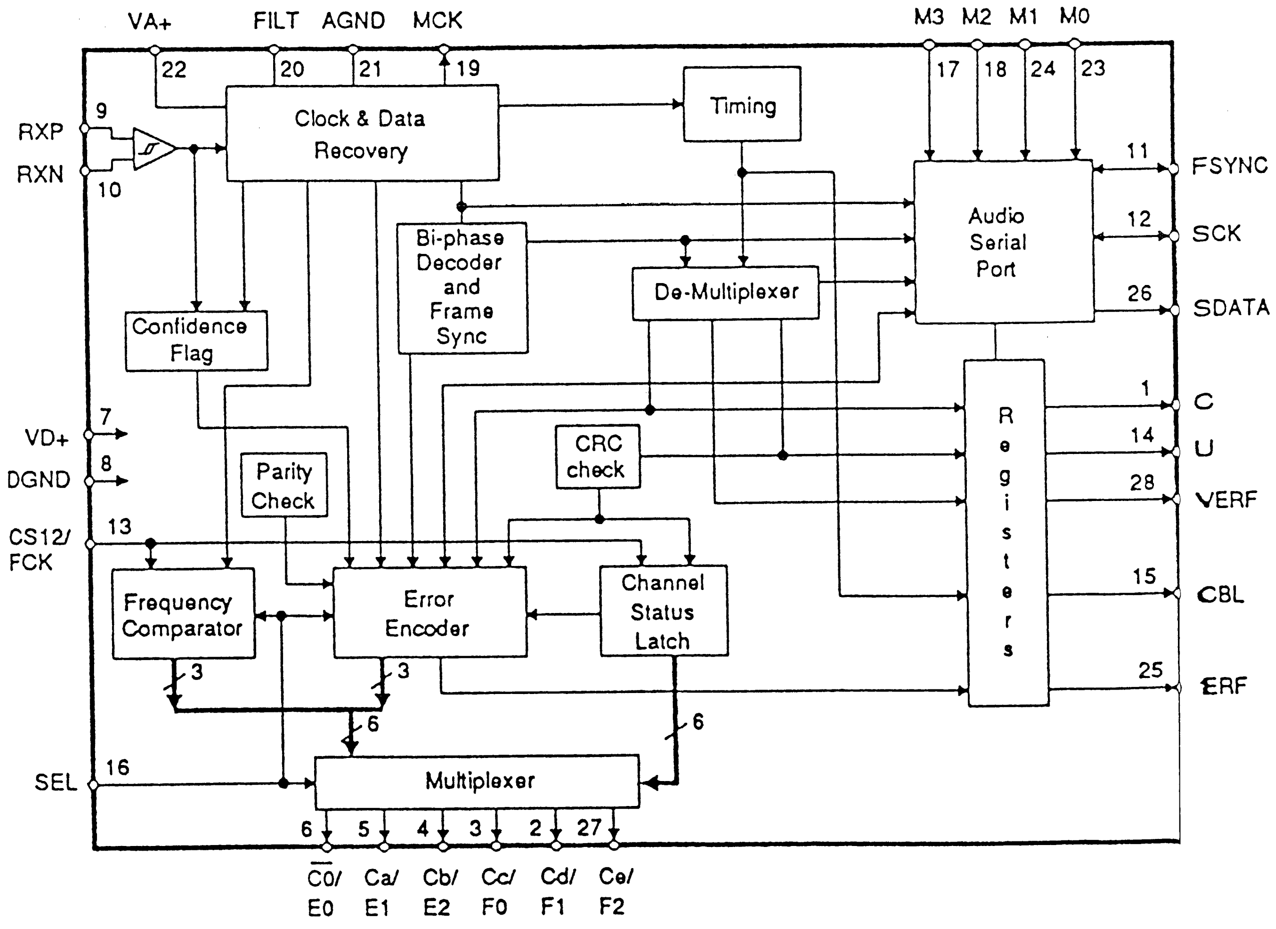
PIN NO.	PORT NAME		I/O	ACT	FUNCTION
1	P1.0	D-SUB IN	I	H	PAUSE
2	P1.1	D-SUB IN	I	H	PLAY
3	P1.2	D-SUB IN	I	H	STOP
4	P1.3	D-SUB IN	I	H	REC
5	P1.4	D-SUB IN	I	H	TRACK INCREMENT
6	P1.5	D-SUB OUT	O	L	STOP
7	P1.6	D-SUB OUT	O	L	PLAY
8	P1.7	D-SUB OUT	O	L	PAUSE
9	RESET	RESET	I	H	RESET FOR IC
10	P3.0	N.C			
11	P3.1	N.C			
12	P3.2	N.C			
13	P3.3	N.C			
14	P3.4	RC-5	O	P	REMOTE CODE FOR CDR
15	P3.5	RC-5	O	P	REMOTE CODE FOR SYSTEM
16	P3.6	SCL	I/O	P	CLOCK FOR EEPROM
17	P3.7	SDA	I/O	P	DATA FOR EEPROM
18	XTAL1	X1	–	–	CLOCK 12MHz
19	XTAL2	X2	–	–	CLOCK 12MHz
20	VSS	Vss	–	–	GND
21	P2.0	Key IN	I	P	TAPE, REC
22	P2.1	Key IN	I	P	DCC, MUTE
23	P2.2	Key IN	I	P	CD, APPEND
24	P2.3	Key IN	I	P	CDR, TR. INCR.
25	P2.4	Key IN	I	P	REW, REV/FAST
26	P2.5	Key IN	I	P	FF, PAUSE
27	P2.6	Key IN	I	P	PREV, STOP
28	2.7	Key IN	I	P	NEXT, PLAY
29	PSEN	N.C	–	–	
30	ALE	N.C.	–	–	
31	EA	E.C	–	–	
32	P0.7	Key OUT	O	P	REC, MUTE, APPEND, TR INCR, REV/FAST, PAUSE, STOP, PLAY
33	P0.6	Key OUT	O	P	TAPE, DCC, CD, CDR, REW, FF, PREV, NECT
34	P0.5	N.C	–	–	
35	P0.4	LED OUT	O	L	REMOTE
36	P0.3	LED OUT	O	L	TAPE
37	P0.2	LED OUT	O	L	DCC
38	P0.1	LED OUT	O	L	CD
39	P0.0	LED OUT	O	L	CDR
40	VDD	VDD	–	–	+5V

IC BLOCK DIAGRAM
CS8402



M2
M1
M0
23
22
21
SDATA
8
SCK
6
FSYNC
7
Serial Port Logic
Audio
Aux
C Bits
CRC
U Bits
Validity
Preamble
Parity
Mux
Biphase Mark Encoder
Line Driver
20
TXP
TXN
17
C
10
U
11
V
9
Registers
Timing
16
RST
TRNPT
24
2
14
13
3
4
1
12
15
5
PRO
EM0
EM1
C1
C6
C7
C9
CBL
MCK

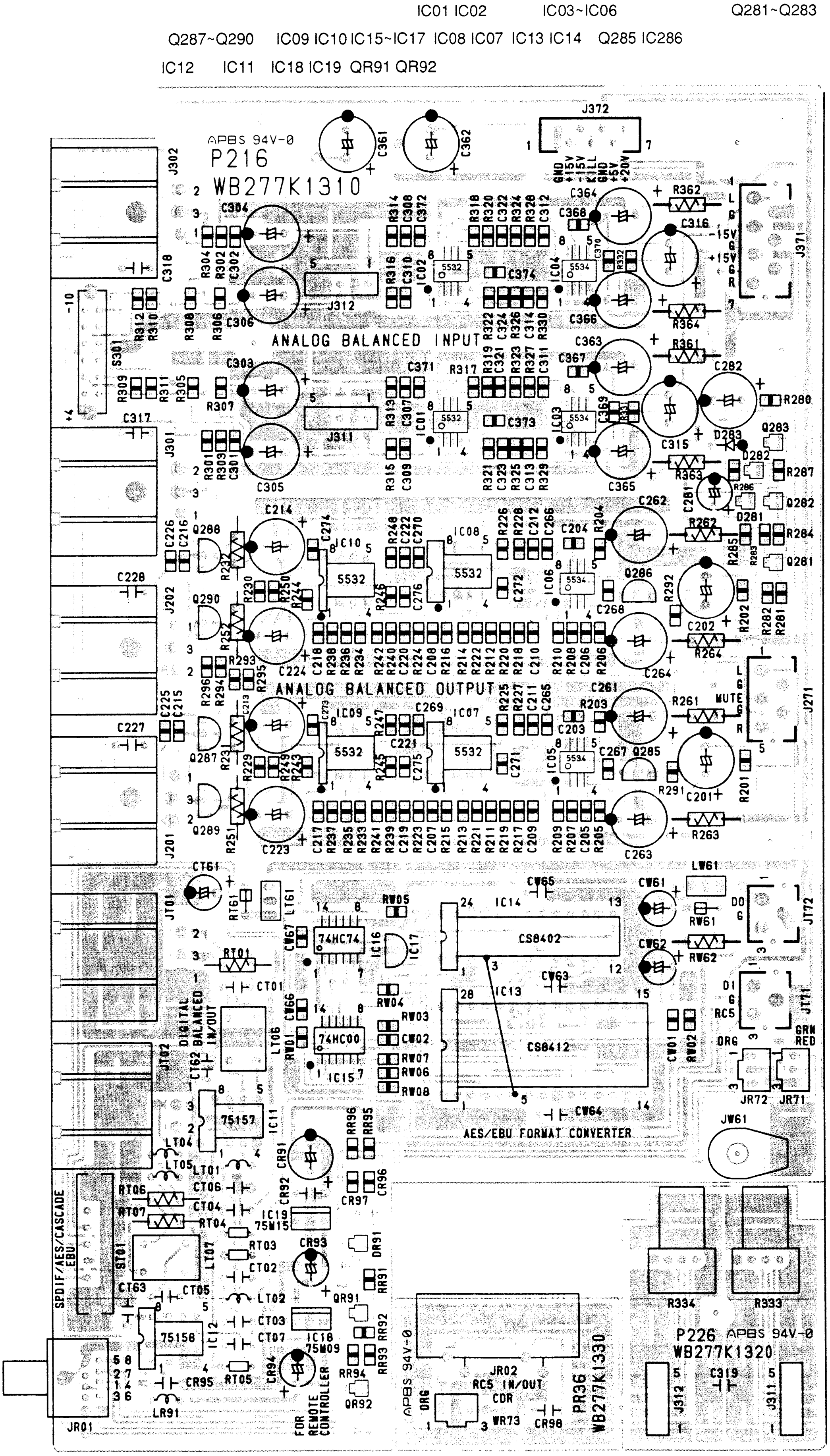
CS8412



VA+
FILT
AGND
MCK
22
20
21
19
M3
M2
M1
M0
17
18
24
23
RXP
9
RXN
10
Clock & Data Recovery
Timing
Audio Serial Port
11
FSYNC
12
SCK
26
SDATA
Bi-phase Decoder and Frame Sync
De-Multiplexer
Confidence Flag
Registers
1
C
14
U
28
VERF
15
CBL
25
ERF
VD+
7
DGND
8
CS12/ FCK
13
Parity Check
CRC check
Frequency Comparator
Error Encoder
Channel Status Latch
3
3
6
6
SEL
16
Multiplexer
6
5
4
3
2
27
C0/ E0
Ca/ E1
Cb/ E2
Cc/ F0
Cd/ F1
Ce/ F2

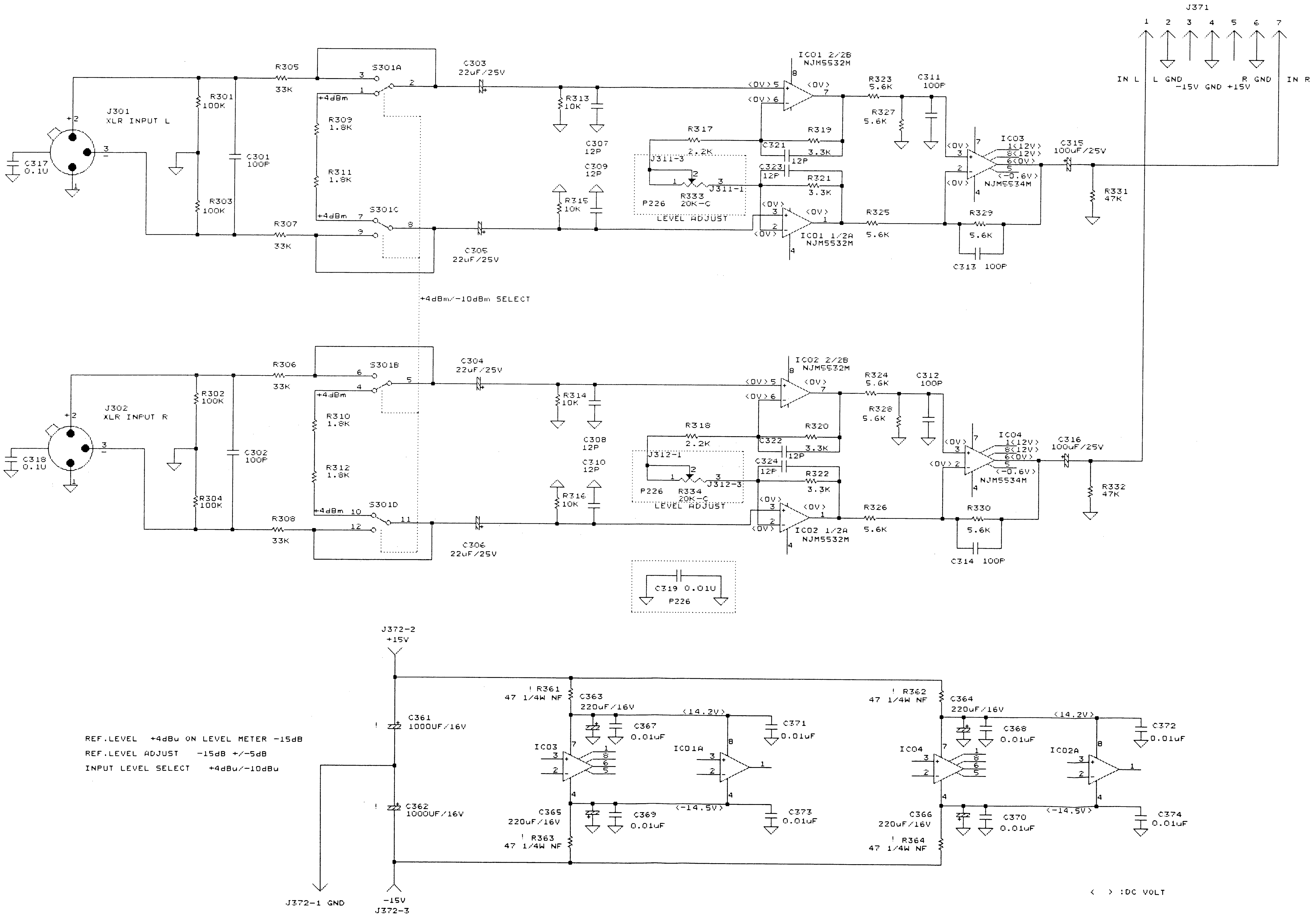
SCHEMATIC DIAGRAM AND PARTS LOCATIONS

BALANCED (XLR) P. C. BOARD P216


IC01 IC02
IC03~IC06
Q281~Q283
Q287~Q290
IC09 IC10 IC15~IC17
IC08 IC07
IC13 IC14
Q285 IC286
IC12
IC11
IC18 IC19
QR91 QR92
APBS 94V-0
P216
WB277K1310
J372
GND
+15V
-15V
KILL
GND
+5V
+20V
J371
J302
J301
J202
J201
JT01
JT02
S301
J312
J311
ANALOG BALANCED INPUT
ANALOG BALANCED OUTPUT
5532
5534
J271
MUTE
74HC74
74HC00
CS8402
CS8412
75157
75158
75M15
75M09
AES/EBU FORMAT CONVERTER
DIGITAL BALANCED IN/OUT
SPDIF/AES/CASCADE EBU
FOR REMOTE CONTROLLER
JR01
JR02
RC5 IN/OUT
CDR
ORG
JT72
JT71
GRN
RED
JR72
JR71
JW61
R334
R333
P226
APBS 94V-0
WB277K1320
PR36
WB277K1330
C319

P216 – 1/4
ANALOG BALANCED INPUT

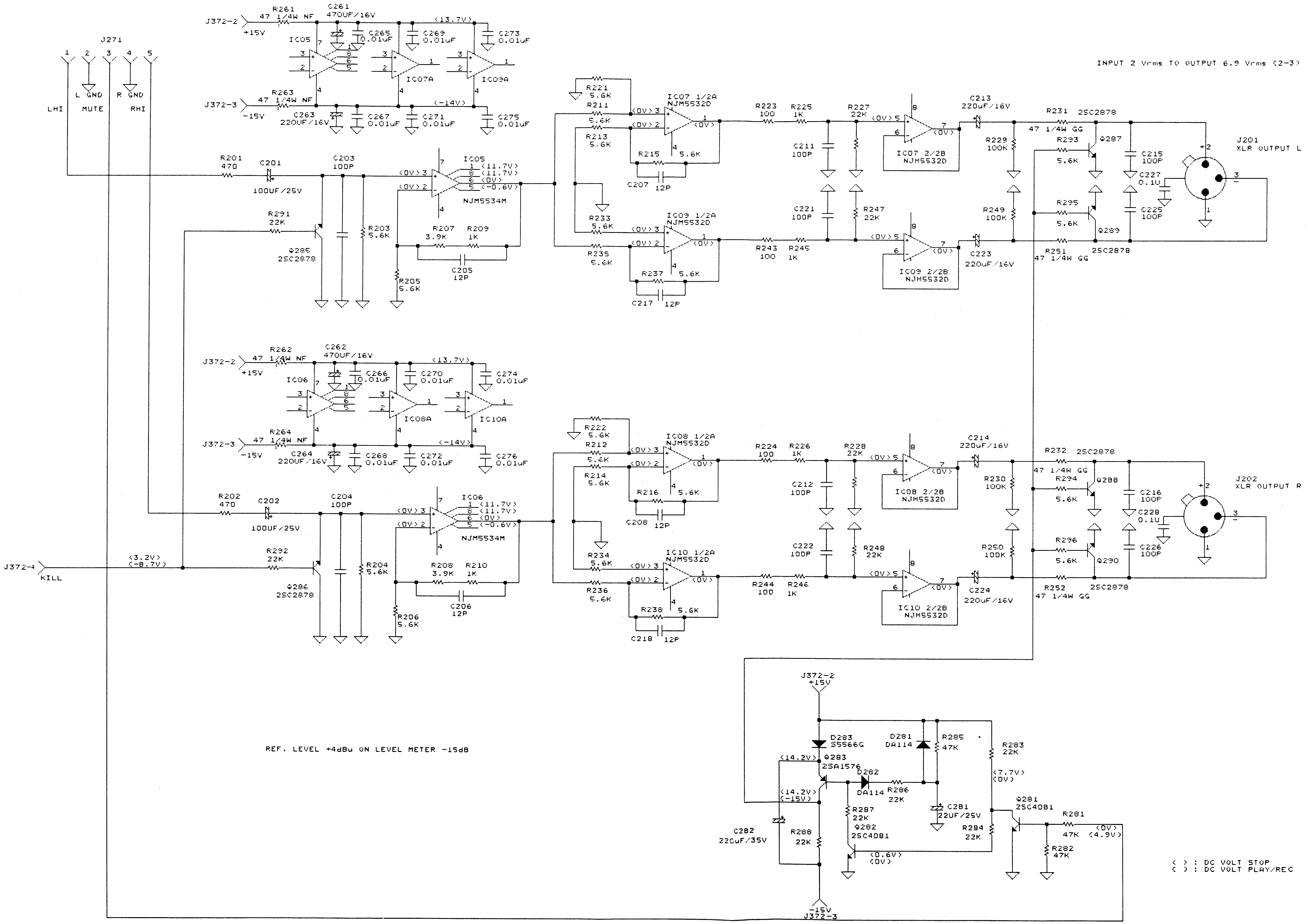
INPUT 6.9 Vrms (2-3) TO OUTPUT 700 mVrms ON +4dBu


J371
IN L
L GND
-15V GND +15V
R GND
IN R
J301
XLR INPUT L
J302
XLR INPUT R
C317 0.1U
C318 0.1U
R301 100K
R302 100K
R303 100K
R304 100K
C301 100P
C302 100P
R305 33K
R306 33K
R307 33K
R308 33K
S301A
S301B
S301C
S301D
+4dBm
R309 1.8K
R310 1.8K
R311 1.8K
R312 1.8K
+4dBm/-10dBm SELECT
C303 22uF/25V
C304 22uF/25V
C305 22uF/25V
C306 22uF/25V
R313 10K
R314 10K
R315 10K
R316 10K
C307 12P
C308 12P
C309 12P
C310 12P
R317 2.2K
R318 2.2K
J311-3
J311-1
J312-1
J312-3
R333 20K-C
R334 20K-C
P226
LEVEL ADJUST
C321 12P
C322 12P
C323 12P
C324 12P
R319 3.3K
R320 3.3K
R321 3.3K
R322 3.3K
IC01 2/2B NJM5532M
IC01 1/2A NJM5532M
IC02 2/2B NJM5532M
IC02 1/2A NJM5532M
R323 5.6K
R324 5.6K
R325 5.6K
R326 5.6K
R327 5.6K
R328 5.6K
R329 5.6K
R330 5.6K
C311 100P
C312 100P
C313 100P
C314 100P
IC03 NJM5534M
IC04 NJM5534M
C315 100uF/25V
C316 100uF/25V
R331 47K
R332 47K
C319 0.01U
J372-2 +15V
J372-1 GND
-15V J372-3
C361 1000UF/16V
C362 1000UF/16V
R361 47 1/4W NF
R362 47 1/4W NF
R363 47 1/4W NF
R364 47 1/4W NF
C363 220uF/16V
C364 220uF/16V
C365 220uF/16V
C366 220uF/16V
C367 0.01uF
C368 0.01uF
C369 0.01uF
C370 0.01uF
C371 0.01uF
C372 0.01uF
C373 0.01uF
C374 0.01uF
IC01A
IC02A
(14.2V)
(-14.5V)
(0V)
(12V)
(-0.6V)

REF.LEVEL +4dBu ON LEVEL METER -15dB
REF.LEVEL ADJUST -15dB +/-5dB
INPUT LEVEL SELECT +4dBu/-10dBu

< > :DC VOLT

P216 – 2/4
ANALOG BALANCED OUTPUT



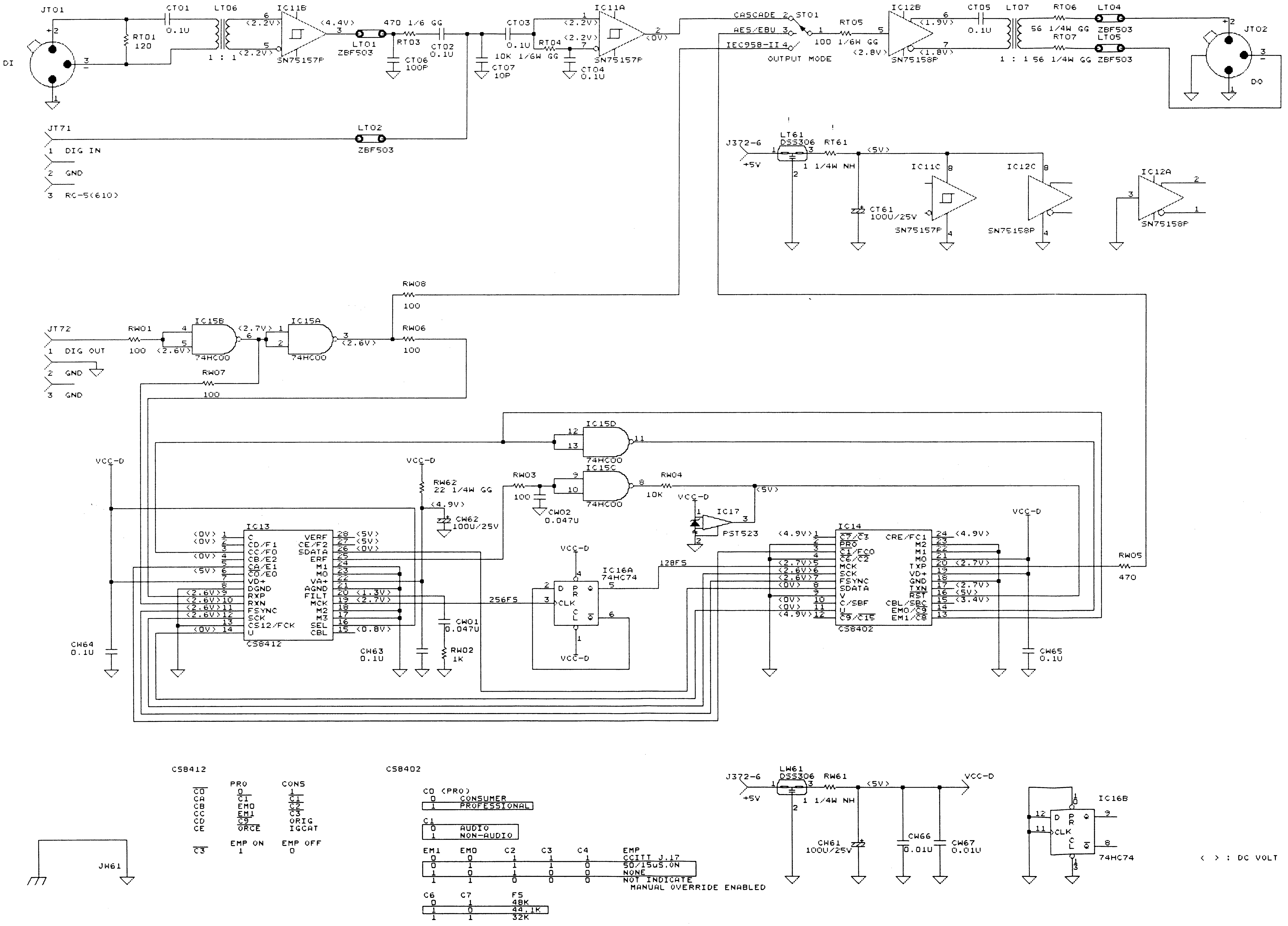
INPUT 2 Vrms TO OUTPUT 6.9 Vrms (2-3)

REF. LEVEL +4dBu ON LEVEL METER -15dB

( ) : DC VOLT STOP
< > : DC VOLT PLAY/REC

J271
1
2
3
4
5
LHI
L GND
MUTE
R GND
RHI
J372-2
+15V
R261
47 1/4W NF
C261
470UF/16V
<13.7V>
C265
0.01uF
C269
0.01uF
C273
0.01uF
IC05
IC07A
IC09A
J372-3
-15V
R263
47 1/4W NF
C263
220UF/16V
C267
0.01uF
C271
0.01uF
C275
0.01uF
<-14V>
R201
470
C201
100UF/25V
C203
100P
<0V> 3
<0V> 2
IC05
1 <11.7V>
8 <11.7V>
6 <0V>
5 <-0.6V>
NJM5534M
R291
22K
Q285
2SC2878
R203
5.6K
R207
3.9K
R209
1K
C205
12P
R205
5.6K
R221
5.6K
R211
5.6K
R213
5.6K
IC07 1/2A
NJM5532D
R215
5.6K
C207
12P
R233
5.6K
R235
5.6K
IC09 1/2A
NJM5532D
R237
5.6K
C217
12P
R223
100
R225
1K
C211
100P
R227
22K
IC07 2/2B
NJM5532D
C213
220UF/16V
R229
100K
C221
100P
R247
22K
R243
100
R245
1K
IC09 2/2B
NJM5532D
C223
220UF/16V
R249
100K
R231
47 1/4W GG
2SC2878
R293
5.6K
Q287
C215
100P
C227
0.1U
R295
5.6K
Q289
C225
100P
R251
47 1/4W GG
2SC2878
J201
XLR OUTPUT L
R262
47 1/4W NF
C262
470UF/16V
C266
0.01uF
C270
0.01uF
C274
0.01uF
IC06
IC08A
IC10A
R264
47 1/4W NF
C264
220UF/16V
C268
0.01uF
C272
0.01uF
C276
0.01uF
R202
470
C202
100UF/25V
C204
100P
IC06
NJM5534M
R292
22K
Q286
2SC2878
R204
5.6K
R208
3.9K
R210
1K
C206
12P
R206
5.6K
J372-4
KILL
(3.2V)
<-8.7V>
R222
5.6K
R212
5.6K
R214
5.6K
IC08 1/2A
NJM5532D
R216
5.6K
C208
12P
R234
5.6K
R236
5.6K
IC10 1/2A
NJM5532D
R238
5.6K
C218
12P
R224
100
R226
1K
C212
100P
R228
22K
IC08 2/2B
NJM5532D
C214
220UF/16V
R230
100K
C222
100P
R248
22K
R244
100
R246
1K
IC10 2/2B
NJM5532D
C224
220UF/16V
R250
100K
R232
47 1/4W GG
2SC2878
R294
5.6K
Q288
C216
100P
C228
0.1U
R296
5.6K
Q290
C226
100P
R252
47 1/4W GG
2SC2878
J202
XLR OUTPUT R
J372-2
+15V
D283
S5566G
D281
DA114
R285
47K
R283
22K
(14.2V)
Q283
2SA1576
D282
DA114
R286
22K
<7.7V>
(0V)
(14.2V)
<-15V>
C281
22UF/25V
Q281
2SC4081
R281
47K
(0V)
<4.9V>
R282
47K
R287
22K
Q282
2SC4081
R284
22K
C282
220uF/35V
R288
22K
(0.6V)
<0V>
-15V
J372-3

P216 – 3/4
PRO FORMAT CONV. AND IN/OUT


JT01
DI
RT01 120
CT01 0.1U
LT06
1 : 1
IC11B
SN75157P
<4.4V>
<2.2V>
LT01 ZBF503
470 1/6 GG
RT03
CT02 0.1U
CT06 100P
CT03 0.1U
RT04 10K 1/6W GG
CT07 10P
CT04 0.1U
IC11A
SN75157P
<0V>
CASCADE
AES/EBU
IEC958-II
ST01
OUTPUT MODE
RT05 100 1/6W GG
IC12B
SN75158P
<1.9V>
<1.8V>
<2.8V>
CT05 0.1U
LT07
1 : 1
RT06 56 1/4W GG
RT07 56 1/4W GG
LT04 ZBF503
LT05 ZBF503
JT02
DO
JT71
1 DIG IN
2 GND
3 RC-5(610)
LT02 ZBF503
J372-6
+5V
LT61 DSS306
RT61 1 1/4W NH
<5V>
CT61 100U/25V
IC11C SN75157P
IC12C SN75158P
IC12A SN75158P
RW08 100
JT72
1 DIG OUT
2 GND
3 GND
RW01 100
IC15B 74HC00
<2.7V>
<2.6V>
IC15A 74HC00
RW06 100
RW07 100
IC15D 74HC00
IC15C 74HC00
RW03 100
CW02 0.047U
RW04 10K
VCC-D
IC17 PST523
RW62 22 1/4W GG
<4.9V>
CW62 100U/25V
IC13 CS8412
C
CD/F1
CC/F0
CB/E2
CA/E1
C0/E0
VD+
DGND
RXP
RXN
FSYNC
SCK
CS12/FCK
U
VERF
CE/F2
SDATA
ERF
M1
M0
VA+
AGND
FILT
MCK
M2
M3
SEL
CBL
<0V>
<5V>
<1.3V>
<2.7V>
<0.8V>
CW01 0.047U
RW02 1K
CW63 0.1U
CW64 0.1U
IC16A 74HC74
256FS
128FS
IC14 CS8402
C7/C3
PRO
C1/FC0
C6/C2
MCK
SCK
FSYNC
SDATA
V
C/SBF
U
C9/C15
CRE/FC1
M2
M1
M0
TXP
VD+
GND
TXN
RST
CBL/SBC
EM0/C9
EM1/C8
<3.4V>
CW65 0.1U
RW05 470
LW61 DSS306
RW61 1 1/4W NH
CW61 100U/25V
CW66 0.01U
CW67 0.01U
IC16B 74HC74
JW61
< > : DC VOLT

CS8412

	PRO	CONS
$\overline{C0}$	0	1
CA	$\overline{C1}$	$\overline{C1}$
CB	EM0	$\overline{C2}$
CC	$\overline{EM1}$	$\overline{C3}$
CD	$\overline{C9}$	ORIG
CE	$\overline{ORCE}$	IGCAT

	EMP ON	EMP OFF
$\overline{C3}$	1	0

CS8402

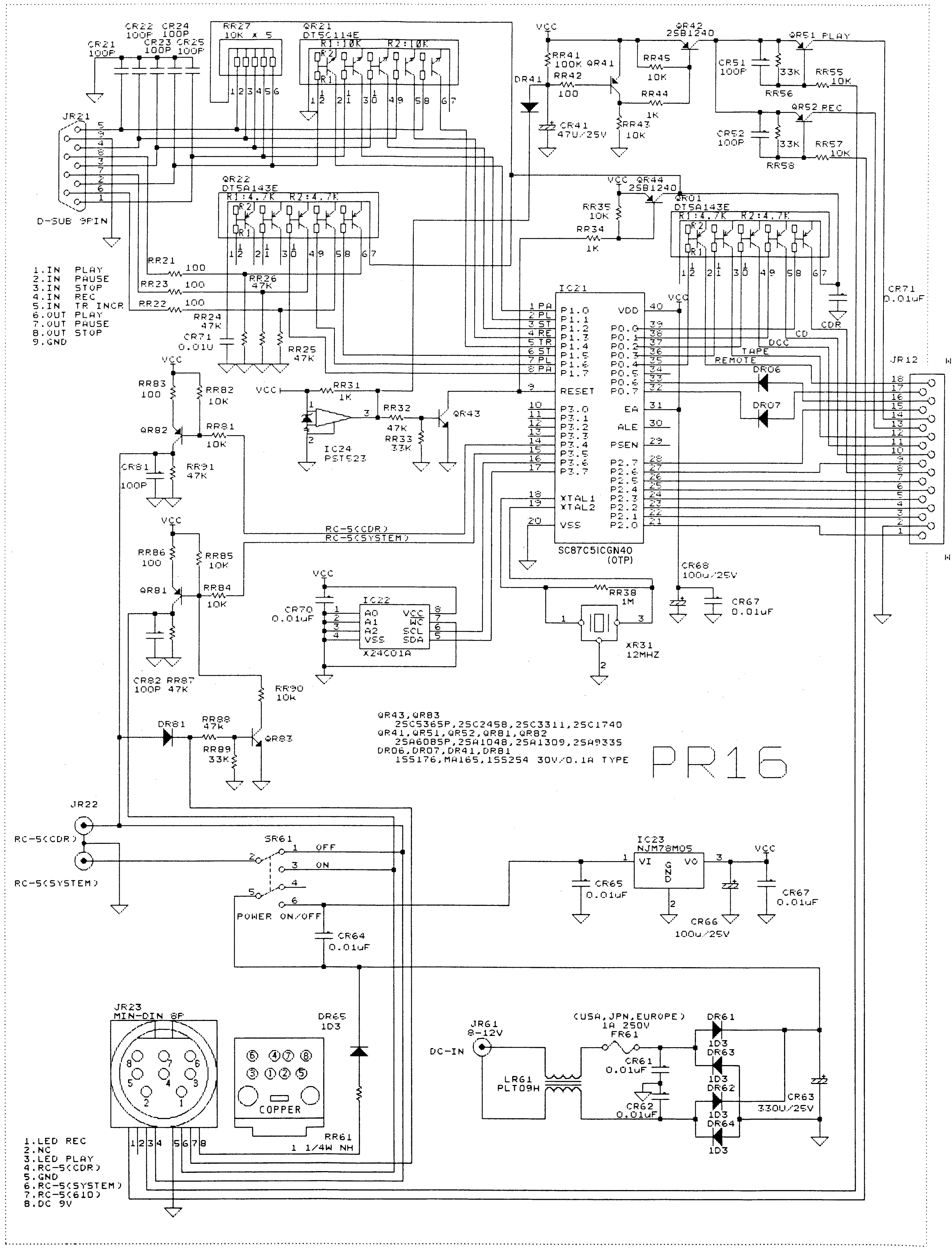
C0 (PRO)	
0	CONSUMER
1	PROFESSIONAL

C1	
0	AUDIO
1	NON-AUDIO

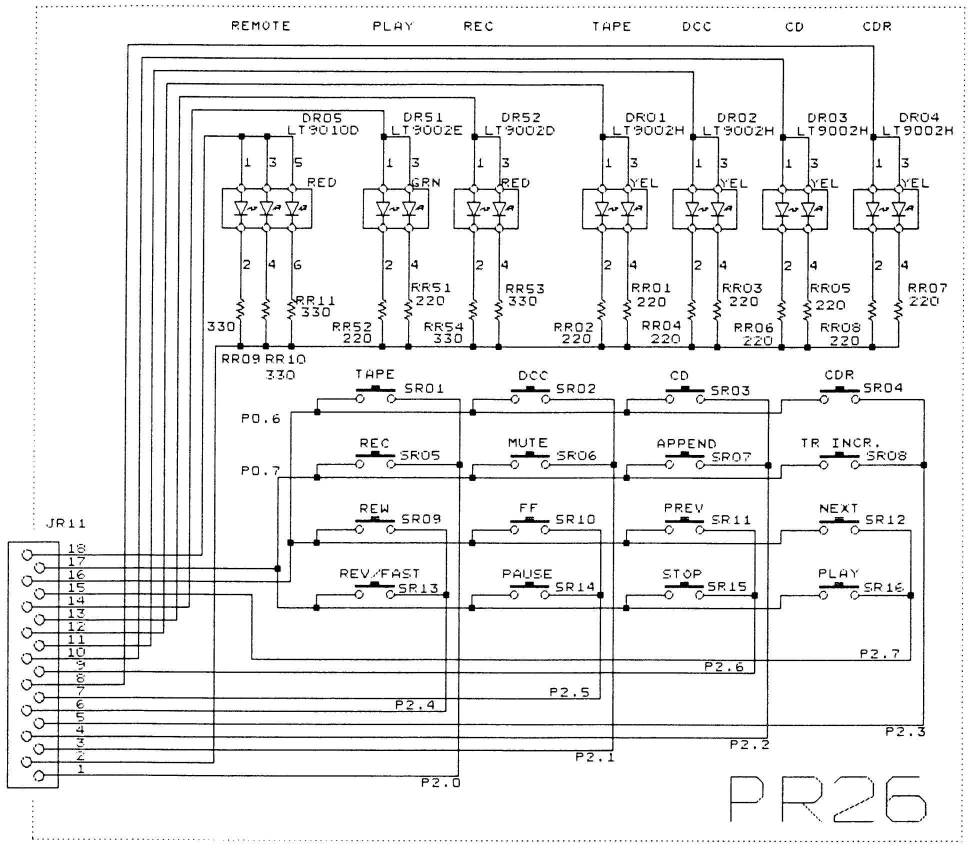
EM1	EM0	C2	C3	C4	EMP
0	0	1	1	1	CCITT J.17
0	1	1	1	0	50/15uS.ON
1	0	1	0	0	NONE
1	1	0	0	0	NOT INDICATE MANUAL OVERRIDE ENABLED

C6	C7	FS
0	1	48K
1	0	44.1K
1	1	32K

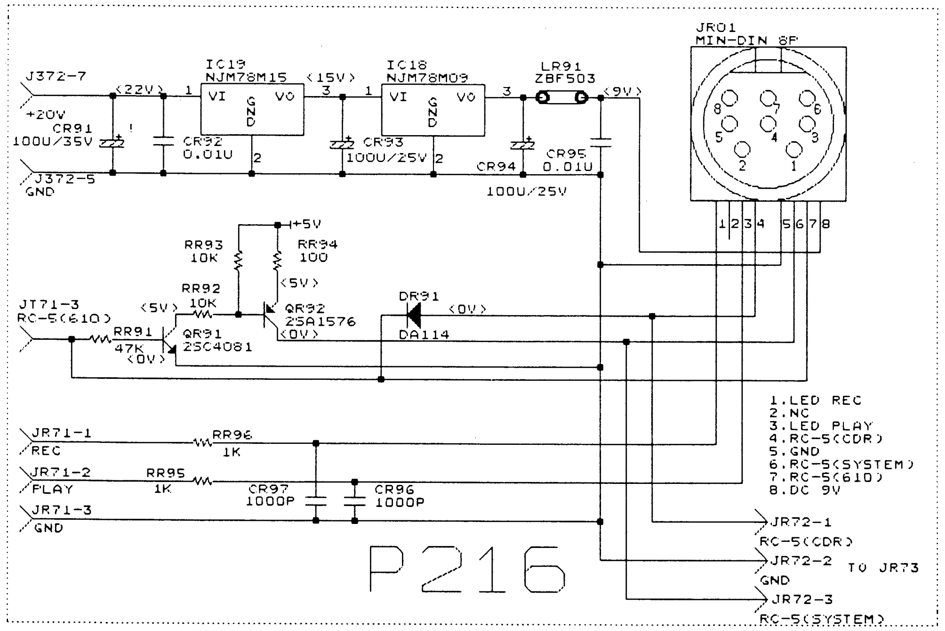
REMOTE MAIN


JR21
D-SUB 9PIN
1.IN PLAY
2.IN PAUSE
3.IN STOP
4.IN REC
5.IN TR INCR
6.OUT PLAY
7.OUT PAUSE
8.OUT STOP
9.GND
CR21 100P
CR22 CR24 100P 100P
CR23 CR25 100P 100P
RR27 10K x 5
QR21 DTSC114E
QR22 DTSA143E
QR01 DTSA143E
QR42 2SB1240
QR44 2SB1240
QR41
QR51 PLAY
QR52 REC
RR41 100K
RR42 100
RR43 10K
RR44 1K
RR45 10K
CR41 47U/25V
DR41
CR51 100P
CR52 100P
RR55 10K
RR57 10K
RR56
RR58
RR35 10K
RR34 1K
RR21 100
RR22 100
RR23 100
RR24 47K
RR25 47K
RR26 47K
CR71 0.01U
CR71 0.01uF
IC21
SC87C51CGN40 (OTP)
VDD
RESET
EA
ALE
PSEN
XTAL1
XTAL2
VSS
CDR
DCC
TAPE
REMOTE
DR06
DR07
JR12
WR01
WIRE
IC24 PST523
RR31 1K
RR32 47K
RR33 33K
QR43
RR83 100
RR82 10K
RR81 10K
QR82
CR81 100P
RR91 47K
RR86 100
RR85 10K
RR84 10K
QR81
CR82 100P
RR87 47K
RC-5(CDR)
RC-5(SYSTEM)
IC22 X24C01A
CR70 0.01uF
RR38 1M
XR31 12MHZ
CR68 100u/25V
CR67 0.01uF
RR90 10K
RR88 47K
RR89 33K
DR81
QR83
QR43,QR83 2SC5365P,2SC2458,2SC3311,2SC1740
QR41,QR51,QR52,QR81,QR82 2SA608SP,2SA1048,2SA1309,2SA9335
DR06,DR07,DR41,DR81 1SS176,MA165,1SS254 30V/0.1A TYPE
PR16
JR22
SR61
OFF
ON
POWER ON/OFF
CR64 0.01uF
IC23 NJM78M05
CR65 0.01uF
CR66 100u/25V
CR67 0.01uF
JR23 MIN-DIN 8P
DR65 1D3
RR61 1 1/4W NH
COPPER
1.LED REC
2.NC
3.LED PLAY
4.RC-5(CDR)
5.GND
6.RC-5(SYSTEM)
7.RC-5(610)
8.DC 9V
JR61 8-12V
DC-IN
LR61 PLT09H
(USA,JPN,EUROPE) 1A 250V
FR61
CR61 0.01uF
CR62 0.01uF
DR61 1D3
DR62 1D3
DR63 1D3
DR64 1D3
CR63 330U/25V

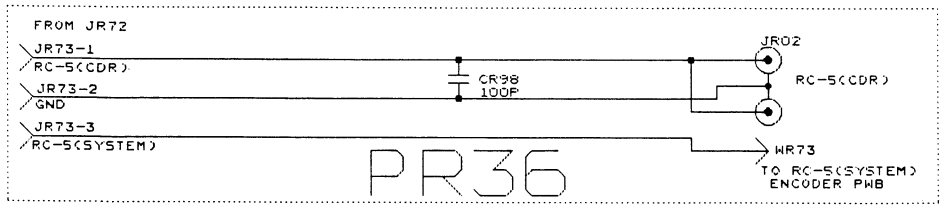
REMOTE TACT SW


REMOTE
PLAY
REC
TAPE
DCC
CD
CDR
DR05 LT9010D
DR51 LT9002E
DR52 LT9002D
DR01 LT9002H
DR02 LT9002H
DR03 LT9002H
DR04 LT9002H
RED
GRN
YEL
RR09 RR10 330
RR11 330
RR51 220
RR52 220
RR53 330
RR54 330
RR01 220
RR02 220
RR03 220
RR04 220
RR05 220
RR06 220
RR07 220
RR08 220
P0.6
P0.7
TAPE SR01
DCC SR02
CD SR03
CDR SR04
REC SR05
MUTE SR06
APPEND SR07
TR INCR. SR08
REW SR09
FF SR10
PREV SR11
NEXT SR12
REV/FAST SR13
PAUSE SR14
STOP SR15
PLAY SR16
JR11
P2.0
P2.1
P2.2
P2.3
P2.4
P2.5
P2.6
P2.7
PR26

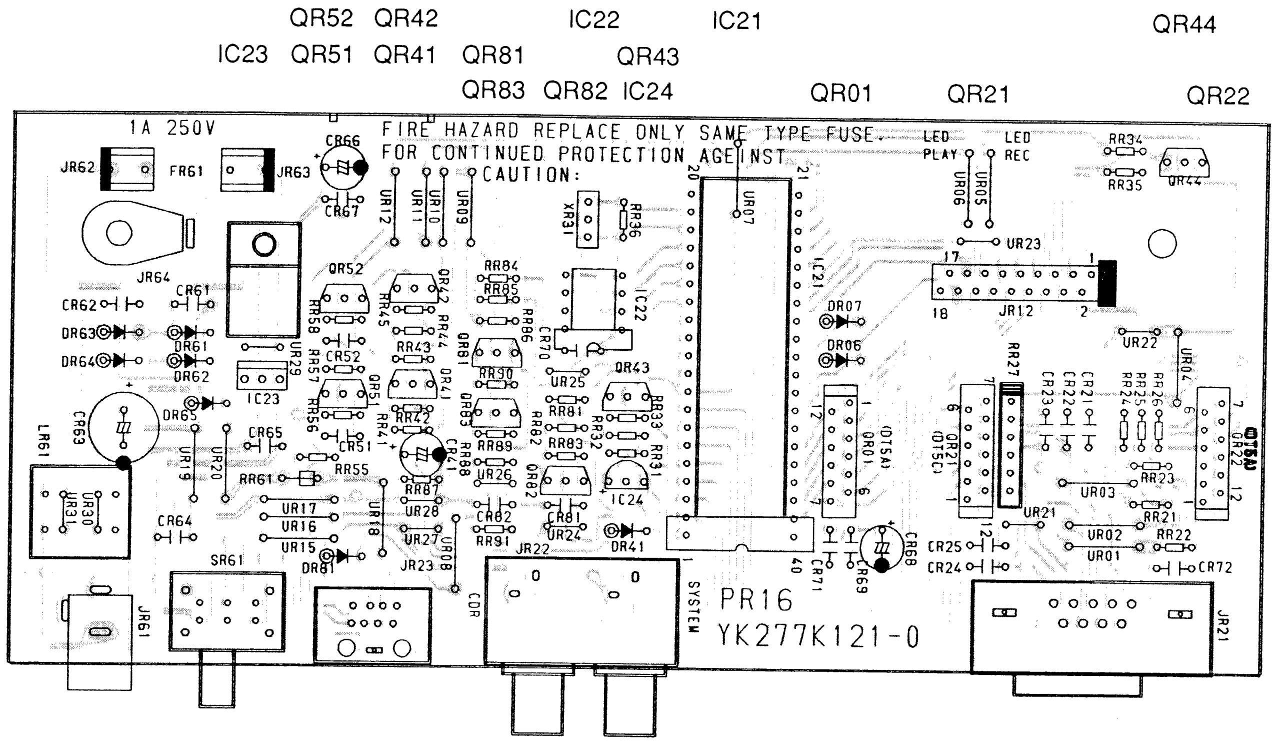
DIN IN/OUT


J372-7
+20V
J372-5 GND
IC19 NJM78M15
IC18 NJM78M09
LR91 ZBF503
(22V)
(15V)
(9V)
CR91 100U/35V
CR92 0.01U
CR93 100U/25V
CR94 100U/25V
CR95 0.01U
JR01 MIN-DIN 8P
+5V
RR93 10K
RR94 100
RR92 10K
QR92 2SA1576
QR91 2SC4081
RR91 47K
DR91 DA114
JT71-3 RC-5(610)
1.LED REC
2.NC
3.LED PLAY
4.RC-5(CDR)
5.GND
6.RC-5(SYSTEM)
7.RC-5(610)
8.DC 9V
JR71-1 REC
JR71-2 PLAY
JR71-3 GND
RR96 1K
RR95 1K
CR97 1000P
CR96 1000P
JR72-1 RC-5(CDR)
JR72-2 GND
JR72-3 RC-5(SYSTEM)
TO JR73
P216

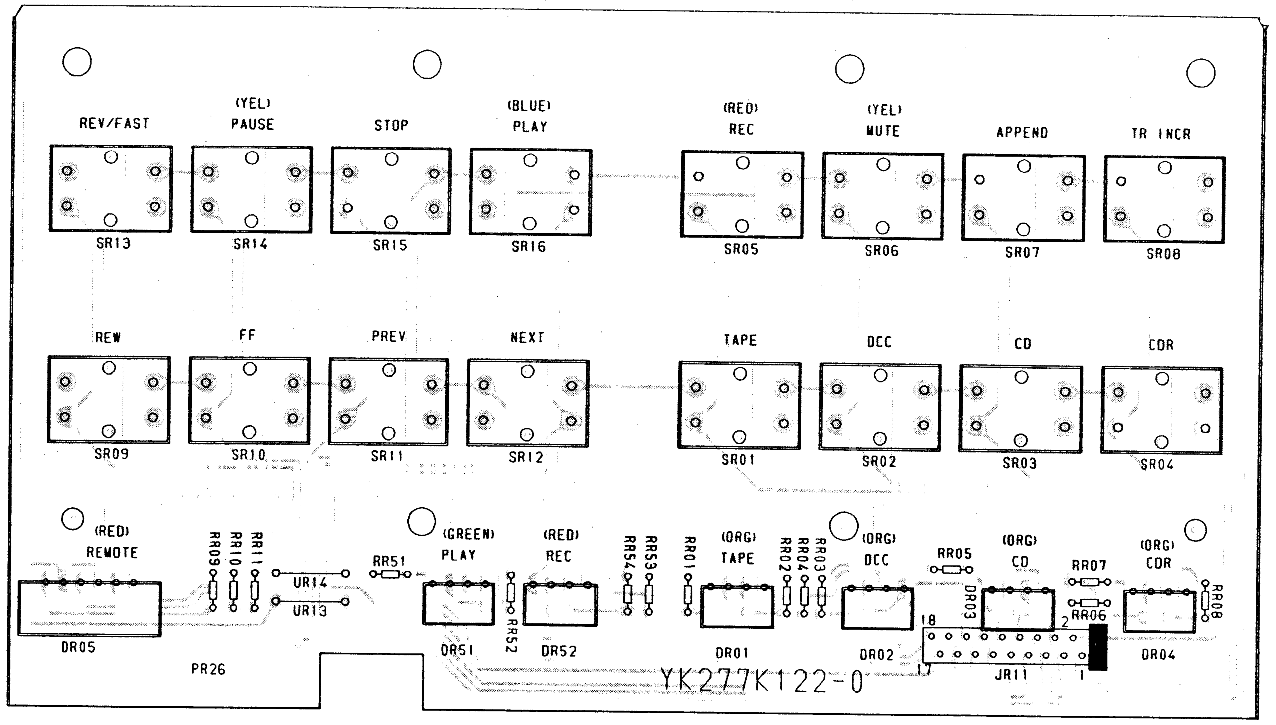
RC-5 IN/OUT


FROM JR72
JR73-1 RC-5(CDR)
JR73-2 GND
JR73-3 RC-5(SYSTEM)
CR98 100P
JR02
RC-5(CDR)
WR73
TO RC-5(SYSTEM) ENCODER PWB
PR36

REMOTE MAIN P.C. BOARD PR16

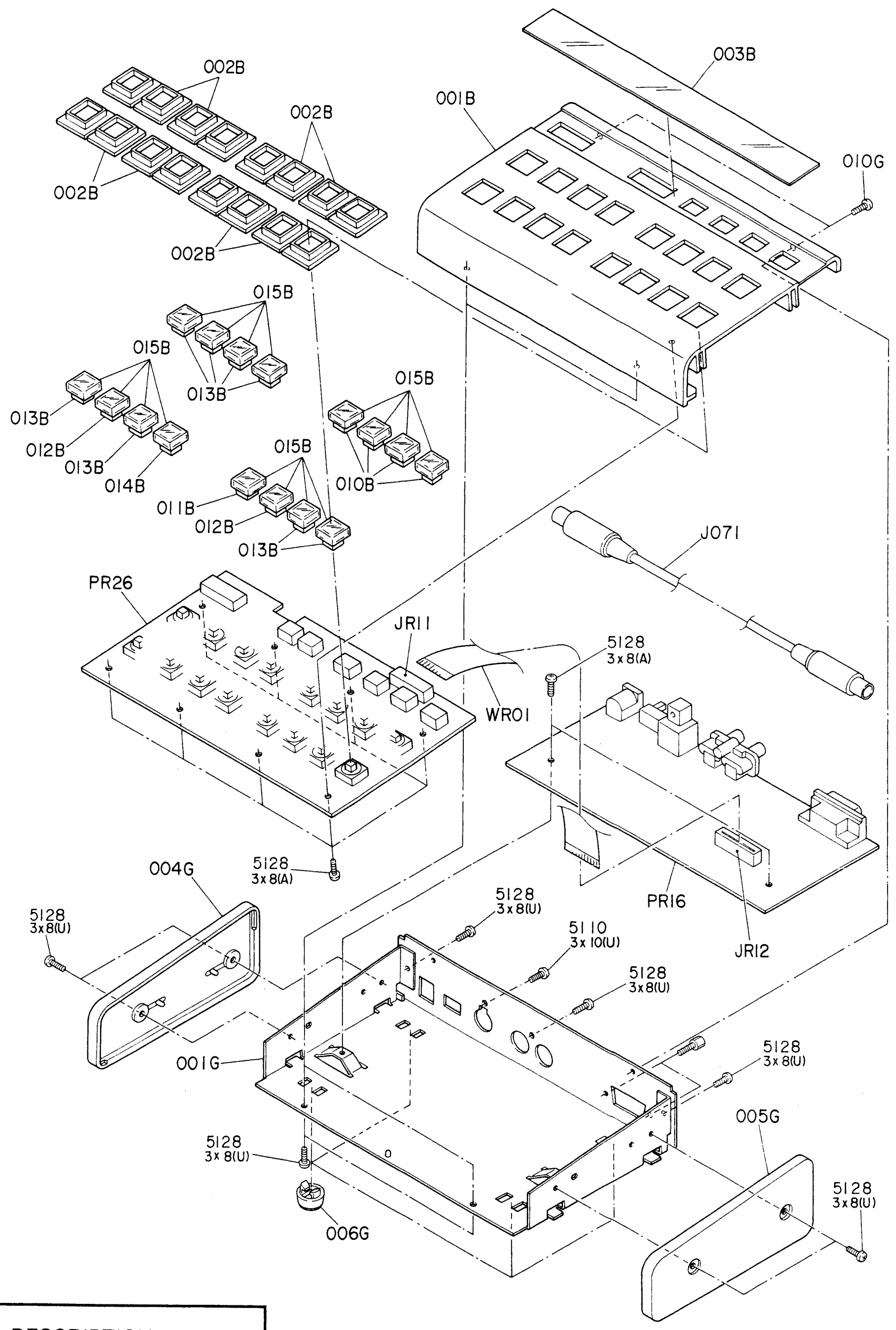

QR52 QR42
IC23 QR51 QR41 QR81
IC22
IC21
QR43
QR83 QR82 IC24
QR01
QR21
QR44
QR22
1A 250V
FIRE HAZARD REPLACE ONLY SAME TYPE FUSE.
FOR CONTINUED PROTECTION AGEINST
CAUTION:
LED PLAY
LED REC
JR62
FR61
JR63
JR64
JR12
JR21
JR22
JR23
JR61
LR61
SR61
UR07
SYSTEM
CDR
PR16
YK277K121-0

REMOTE TACT SW P.C. BOARD PR26


REV/FAST
(YEL) PAUSE
STOP
(BLUE) PLAY
(RED) REC
(YEL) MUTE
APPEND
TR INCR
SR13
SR14
SR15
SR16
SR05
SR06
SR07
SR08
REW
FF
PREV
NEXT
TAPE
DCC
CD
CDR
SR09
SR10
SR11
SR12
SR01
SR02
SR03
SR04
(RED) REMOTE
(GREEN) PLAY
(RED) REC
(ORG) TAPE
(ORG) DCC
(ORG) CD
(ORG) CDR
UR14
UR13
RR51
DR05
DR51
DR52
DR01
DR02
DR03
DR04
JR11
PR26
YK277K122-0

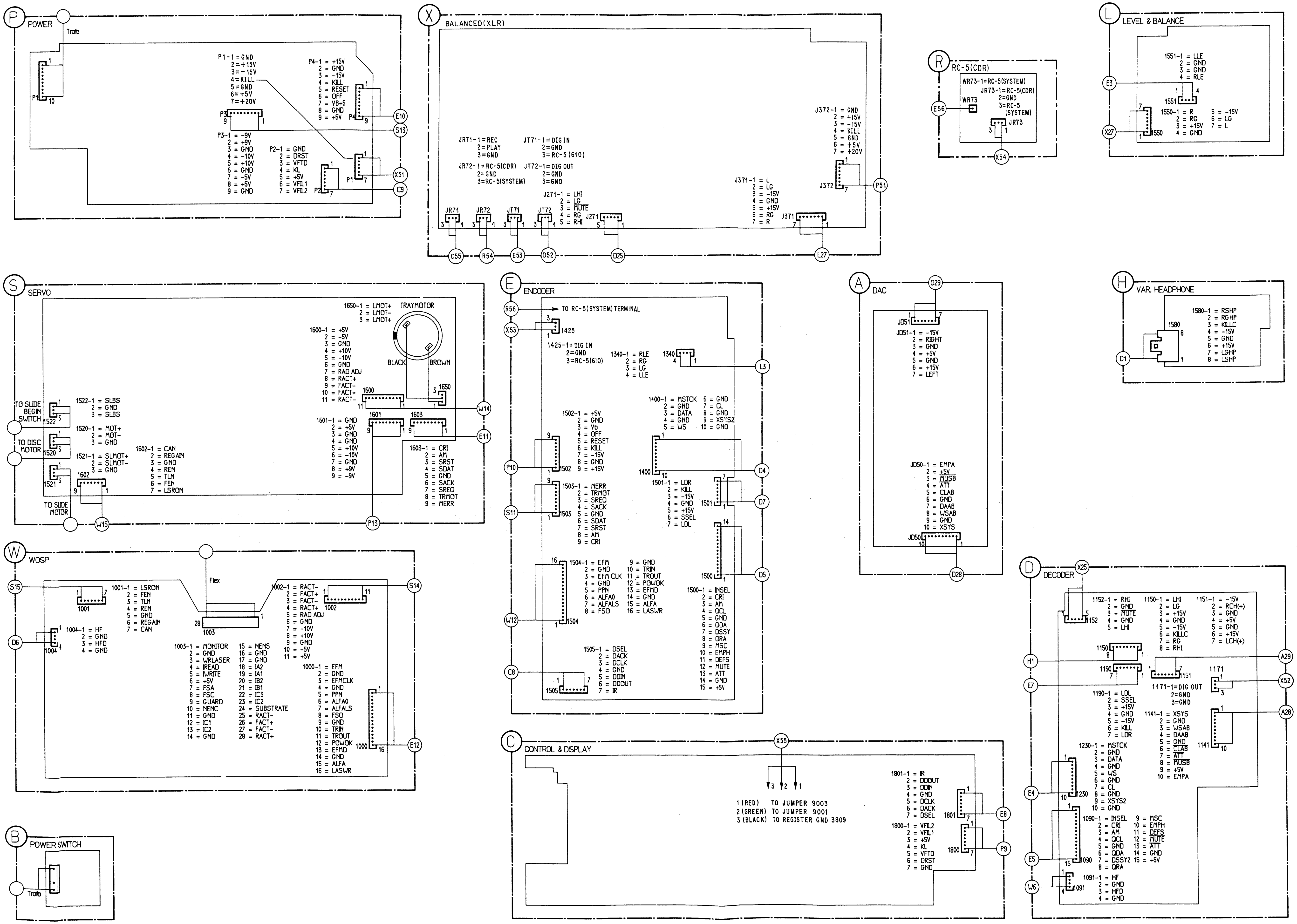
EXPLODED VIEW

REMOTE CONTROL


003B
002B
001B
010G
015B
013B
012B
014B
011B
010B
J071
PR26
JR11
WR01
5128 3x8(A)
004G
5128 3x8(U)
5110 3x10(U)
PR16
JR12
001G
005G
006G

REF. DESIG.	PART NO.	DESCRIPTION
001B	4822 444 40711	FRONT PANEL
002B	4822 532 12274	BUSHING, PANEL
003B	4822 450 62198	WINDOW
010B	4822 410 63079	BUTTON, KEYTOP IVORY
011B	4822 410 63078	BUTTON, KEYTOP RED
012B	4822 410 63164	BUTTON, KEYTOP YELLOR
013B	4822 410 63077	BUTTON, KEYTOP BLACK
014B	4822 410 63073	BUTTON, KEYTOP BLUE
015B	4822 462 71993	CAP, KEYTOP
016B	4822 466 62469	SHEET010B,011B,012B,013B, 014B+015B
004G	4822 444 40712	SIDE PANEL (L)
005G	4822 444 40713	SIDE PANEL (R)
006G	4822 462 40823	LEG
010G		PH.TAP.SCREW 3X10
WR01	4822 321 62365	JUMPER LEAD, FPC CORD 18P/ 100MM

WIRING DIAGRAM

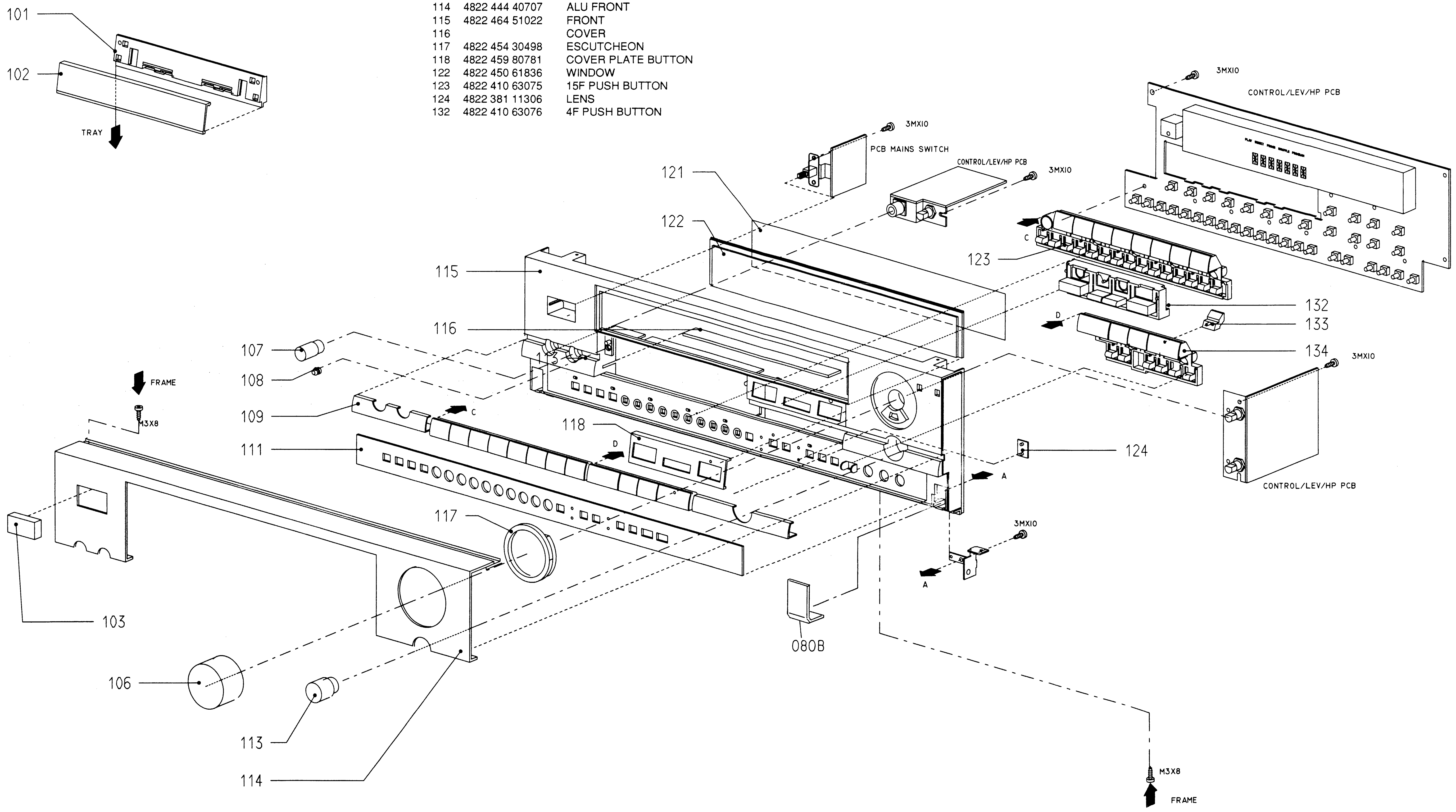

P
POWER
Trafo
P1 10
P1-1 = GND
2 = +15V
3 = -15V
4 = KILL
5 = GND
6 = +5V
7 = +20V
P4-1 = +15V
2 = GND
3 = -15V
4 = KILL
5 = RESET
6 = OFF
7 = VB+5
8 = GND
9 = +5V
P4
P3
P3-1 = -9V
2 = +9V
3 = GND
4 = -10V
5 = +10V
6 = GND
7 = -5V
8 = +5V
9 = GND
P2-1 = GND
2 = DRST
3 = VFTD
4 = KL
5 = +5V
6 = VFIL1
7 = VFIL2
P1
P2
E10
S13
X51
C9
X
BALANCED(XLR)
JR71-1 = REC
2 = PLAY
3 = GND
JT71-1 = DIG IN
2 = GND
3 = RC-5 (610)
JR72-1 = RC-5(CDR)
2 = GND
3 = RC-5(SYSTEM)
JT72-1 = DIG OUT
2 = GND
3 = GND
J271-1 = LHI
2 = LG
3 = MUTE
4 = RG
5 = RHI
J271
J372-1 = GND
2 = +15V
3 = -15V
4 = KILL
5 = GND
6 = +5V
7 = +20V
J372
J371-1 = L
2 = LG
3 = -15V
4 = GND
5 = +15V
6 = RG
7 = R
J371
JR71
JR72
JT71
JT72
C55
R54
E53
D52
D25
L27
P51
R
RC-5(CDR)
WR73-1 = RC-5(SYSTEM)
JR73-1 = RC-5(CDR)
2 = GND
3 = RC-5
(SYSTEM)
WR73
JR73
E56
X54
L
LEVEL & BALANCE
1551-1 = LLE
2 = GND
3 = GND
4 = RLE
1551
1550-1 = R
2 = RG
3 = +15V
4 = GND
5 = -15V
6 = LG
7 = L
1550
E3
X27
S
SERVO
1650-1 = LMOT+
2 = LMOT-
3 = LMOT+
TRAYMOTOR
BLACK
BROWN
1650
1600-1 = +5V
2 = -5V
3 = GND
4 = +10V
5 = -10V
6 = GND
7 = RAD ADJ
8 = RACT+
9 = FACT-
10 = FACT+
11 = RACT-
1600
1601
1603
1601-1 = GND
2 = +5V
3 = GND
4 = GND
5 = +10V
6 = -10V
7 = GND
8 = +9V
9 = -9V
1603-1 = CRI
2 = AM
3 = SRST
4 = SDAT
5 = GND
6 = SACK
7 = SREQ
8 = TRMOT
9 = MERR
TO SLIDE
BEGIN
SWITCH
1522
1522-1 = SLBS
2 = GND
3 = SLBS
TO DISC
MOTOR
1520
1520-1 = MOT+
2 = MOT-
3 = GND
1521
1521-1 = SLMOT+
2 = SLMOT-
3 = GND
1602
1602-1 = CAN
2 = REGAIN
3 = GND
4 = REN
5 = TLN
6 = FEN
7 = LSRON
TO SLIDE
MOTOR
W14
E11
W15
P13
E
ENCODER
R56
TO RC-5(SYSTEM) TERMINAL
X53
1425
1425-1 = DIG IN
2 = GND
3 = RC-5(610)
1340-1 = RLE
2 = RG
3 = LG
4 = LLE
1340
L3
1400-1 = MSTCK
2 = GND
3 = DATA
4 = GND
5 = WS
6 = GND
7 = CL
8 = GND
9 = XSYS2
10 = GND
1400
1502-1 = +5V
2 = GND
3 = Vb
4 = OFF
5 = RESET
6 = KILL
7 = -15V
8 = GND
9 = +15V
1502
P10
1503-1 = MERR
2 = TRMOT
3 = SREQ
4 = SACK
5 = GND
6 = SDAT
7 = SRST
8 = AM
9 = CRI
1503
S11
1501-1 = LDR
2 = KILL
3 = -15V
4 = GND
5 = +15V
6 = SSEL
7 = LDL
1501
D4
D7
1504-1 = EFM
2 = GND
3 = EFM CLK
4 = GND
5 = PPN
6 = ALFAO
7 = ALFALS
8 = FSO
9 = GND
10 = TRIN
11 = TROUT
12 = POWOK
13 = EFMD
14 = GND
15 = ALFA
16 = LASWR
1504
W12
1500-1 = INSEL
2 = CRI
3 = AM
4 = QCL
5 = GND
6 = QDA
7 = DSSY
8 = QRA
9 = MSC
10 = EMPH
11 = DEFS
12 = MUTE
13 = ATT
14 = GND
15 = +5V
1500
D5
1505-1 = DSEL
2 = DACK
3 = DCLK
4 = GND
5 = DDIN
6 = DDOUT
7 = IR
1505
C8
A
DAC
D29
JD51
JD51-1 = -15V
2 = RIGHT
3 = GND
4 = +5V
5 = GND
6 = +15V
7 = LEFT
JD50-1 = EMPA
2 = +5V
3 = MUSB
4 = ATT
5 = CLAB
6 = GND
7 = DAAB
8 = WSAB
9 = GND
10 = XSYS
JD50
D28
H
VAR. HEADPHONE
1580-1 = RSHP
2 = RGHP
3 = KILLC
4 = -15V
5 = GND
6 = +15V
7 = LGHP
8 = LSHP
1580
D1
W
WOSP
Flex
S15
1001-1 = LSRON
2 = FEN
3 = TLN
4 = REN
5 = GND
6 = REGAIN
7 = CAN
1001
1003
1002
1002-1 = RACT-
2 = FACT+
3 = FACT-
4 = RACT+
5 = RAD ADJ
6 = GND
7 = -10V
8 = +10V
9 = GND
10 = -5V
11 = +5V
S14
D6
1004
1004-1 = HF
2 = GND
3 = HFD
4 = GND
1003-1 = MONITOR
2 = GND
3 = WRLASER
4 = IREAD
5 = IWRITE
6 = +5V
7 = FSA
8 = FSC
9 = GUARD
10 = NENC
11 = GND
12 = IC1
13 = IC2
14 = GND
15 = NENS
16 = GND
17 = GND
18 = IA2
19 = IA1
20 = IB2
21 = IB1
22 = IC3
23 = IC2
24 = SUBSTRATE
25 = RACT-
26 = FACT+
27 = FACT-
28 = RACT+
1000-1 = EFM
2 = GND
3 = EFMCLK
4 = GND
5 = PPN
6 = ALFAO
7 = ALFALS
8 = FSO
9 = GND
10 = TRIN
11 = TROUT
12 = POWOK
13 = EFMD
14 = GND
15 = ALFA
16 = LASWR
1000
E12
B
POWER SWITCH
Trafo
C
CONTROL & DISPLAY
X55
1 (RED) TO JUMPER 9003
2 (GREEN) TO JUMPER 9001
3 (BLACK) TO REGISTER GND 3809
1801-1 = IR
2 = DDOUT
3 = DDIN
4 = GND
5 = DCLK
6 = DACK
7 = DSEL
1801
E8
1800-1 = VFIL2
2 = VFIL1
3 = +5V
4 = KL
5 = VFTD
6 = DRST
7 = GND
1800
P9
D
DECODER
X25
1152-1 = RHI
2 = GND
3 = MUTE
4 = GND
5 = LHI
1152
1150-1 = LHI
2 = LG
3 = +15V
4 = GND
5 = -15V
6 = KILLC
7 = RG
8 = RHI
1150
1151-1 = -15V
2 = RCH(+)
3 = GND
4 = +5V
5 = GND
6 = +15V
7 = LCH(+)
1151
A29
H1
1190
1171
1171-1 = DIG OUT
2 = GND
3 = GND
X52
E7
1190-1 = LDL
2 = SSEL
3 = +15V
4 = GND
5 = -15V
6 = KILL
7 = LDR
1141-1 = XSYS
2 = GND
3 = WSAB
4 = DAAB
5 = GND
6 = CLAB
7 = ATT
8 = MUSB
9 = +5V
10 = EMPA
1141
A28
1230-1 = MSTCK
2 = GND
3 = DATA
4 = GND
5 = WS
6 = GND
7 = CL
8 = GND
9 = XSYS2
10 = GND
1230
E4
1090-1 = INSEL
2 = CRI
3 = AM
4 = QCL
5 = GND
6 = QDA
7 = DSSY2
8 = QRA
9 = MSC
10 = EMPH
11 = DEFS
12 = MUTE
13 = ATT
14 = GND
15 = +5V
1090
E5
1091-1 = HF
2 = GND
3 = HFD
4 = GND
1091
W6

EXPLODED VIEWS

FRONT

MECHANICAL PARTS LIST

101	4822 444 40706	TRAY FRONT
102	4822 454 30495	ALU TRAY FRONT
103	4822 410 60194	POWER BUTTON
106	4822 413 41848	REC LEVEL KNOB
107	4822 413 31789	PHONES VOLUME KNOB
109	4822 459 80782	ALU BUTTON SET
111	4822 454 30496	ALU COVER
113	4822 413 41849	BALANCE KNOB
114	4822 444 40707	ALU FRONT
115	4822 464 51022	FRONT
116		COVER
117	4822 454 30498	ESCUTCHEON
118	4822 459 80781	COVER PLATE BUTTON
122	4822 450 61836	WINDOW
123	4822 410 63075	15F PUSH BUTTON
124	4822 381 11306	LENS
132	4822 410 63076	4F PUSH BUTTON
133	4822 381 11474	RECORDING LENS ASSY
134	4822 410 63074	6F PUSH BUTTON
080B	4822 459 80784	MASK, FRONT MOLD
	4822 444 40708	SIDE PANEL LEFT
	4822 444 40709	SIDE PANEL RIGHT
	4822 498 40602	HANDLE
	4822 381 11307	PLAY LENS


101
102
TRAY
3MX10
CONTROL/LEV/HP PCB
3MX10
PCB MAINS SWITCH
CONTROL/LEV/HP PCB
3MX10
121
122
C
123
115
132
D
133
116
134
3MX10
107
113
108
FRAME
109
C
M3X8
118
D
124
111
A
CONTROL/LEV/HP PCB
117
3MX10
A
103
080B
106
113
114
M3X8
FRAME

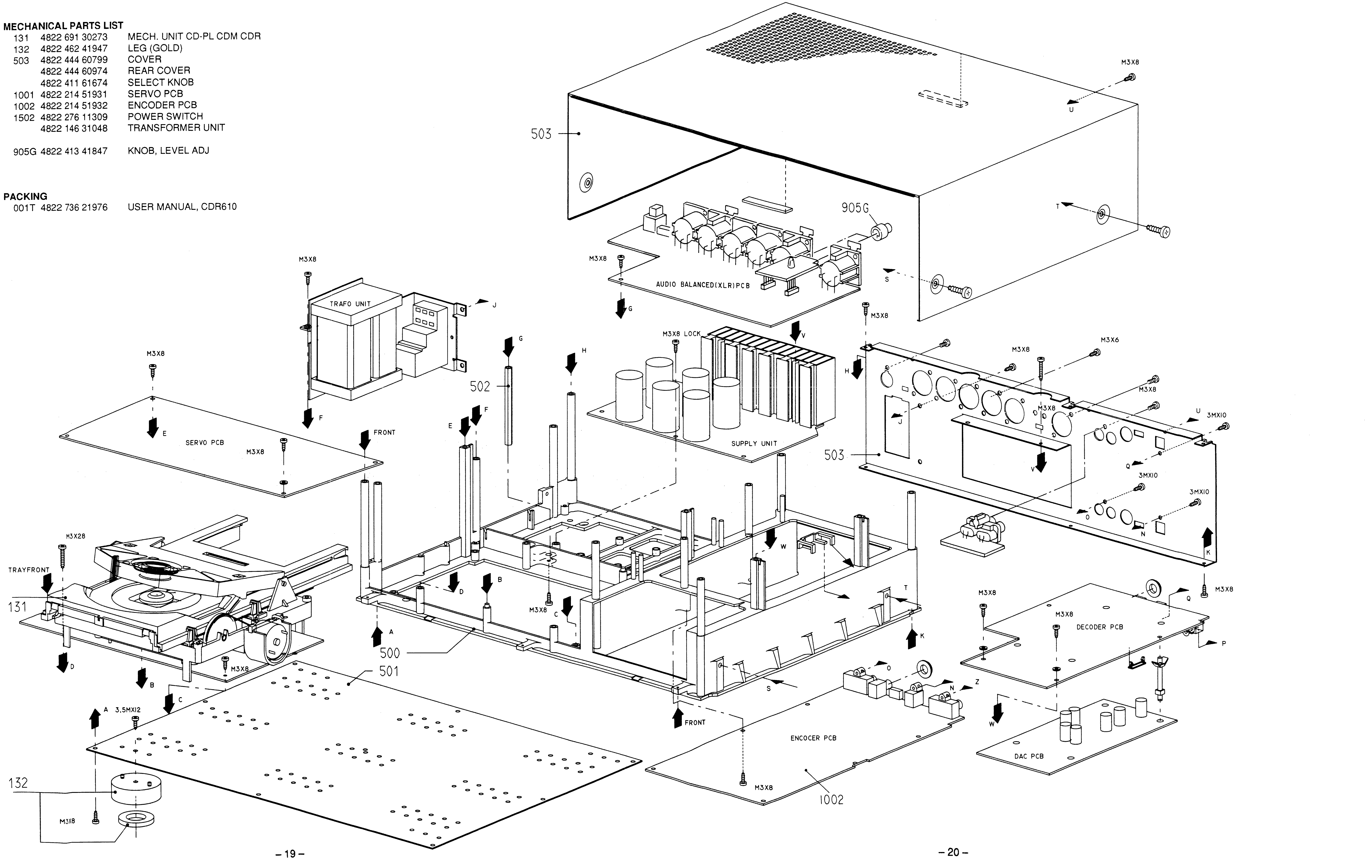
CABINIT

MECHANICAL PARTS LIST

131	4822 691 30273	MECH. UNIT CD-PL CDM CDR
132	4822 462 41947	LEG (GOLD)
503	4822 444 60799	COVER
	4822 444 60974	REAR COVER
	4822 411 61674	SELECT KNOB
1001	4822 214 51931	SERVO PCB
1002	4822 214 51932	ENCODER PCB
1502	4822 276 11309	POWER SWITCH
	4822 146 31048	TRANSFORMER UNIT
905G	4822 413 41847	KNOB, LEVEL ADJ

PACKING

001T	4822 736 21976	USER MANUAL, CDR610


503
M3X8
U
T
S
905G
M3X8
AUDIO BALANCED(XLR)PCB
G
V
M3X8
M3X8
TRAFO UNIT
J
M3X8 LOCK
SUPPLY UNIT
H
M3X8
M3X6
M3X8
M3X8
3MX10
Q
3MX10
3MX10
O
N
K
503
M3X8
SERVO PCB
M3X8
E
F
FRONT
G
E
F
502
H
M3X28
TRAYFRONT
131
D
B
D
B
M3X8
C
A
500
501
W
T
K
FRONT
S
M3X8
M3X8
M3X8
DECODER PCB
Q
P
Z
O
N
W
ENCOCER PCB
DAC PCB
M3X8
1002
A
3,5MX12
C
132
M3X8

ELECTRICAL PARTS LIST

ASSIGNMENT OF COMMON PARTS CODES.

RESISTOR
R ✻ ✻ ✻ : (1) GD05 xxx 140, Carbon film fixed resistor, ±5% 1/4W
R ✻ ✻ ✻ : (2) GD05 xxx 160, Carbon film fixed resistor, ±5% 1/6W
① —— Resistance value

Examples ;
① Resistance value
0.1 Ω ....001 10 Ω ....100 1 kΩ ....102 100 kΩ 104
0.5 Ω ....005 18 Ω ....180 2.7 kΩ ....272 680 kΩ 684
1 Ω ....010 100 Ω ....101 10 kΩ ....103 1 MΩ 105
6.8 Ω ....068 390 Ω ....391 22 kΩ ....223 4.7 MΩ 475

(Note) Please distinguish 1/4W from 1/6W by the shape of parts used actually.

C ✻ ✻ ✻ : CERAMIC CAP.
(1) DD1x xxx 370, Ceramic capacitor
Disc type
Temp. coeff. P350 ~ N1000, 50V
① ②
② Capacity value
① Tolerance

Examples ;
① Tolerance (Capacity deviation)
± 0.25pF 0
± 0.5pF 1
± 5% 5
✻ Tolerance of COMMON PARTS handled here are as follows :
0.5pF ~ 5pF ....± 0.25pF
6pF ~ 10pF ....± 0.5pF
12pF ~ 560pF ....± 5%
② Capacity value
0.5 pF ....005 3 pF ....030 100 pF 101
1 pF ....010 10 pF ....100 220 pF 221
1.5 pF ....015 47 pF ....470 560 pF 561

C ✻ ✻ ✻ : CERAMIC CAP.
(1) DK16 xxx 300, High dielectric constant ceramic capacitor
Disc type
Temp. chara. 2B4, 50V
① Capacity value

Examples ;
② Capacity value
100 pF ....101 1000 pF ....102 10000 pF 103
470 pF ....471 2200 pF 222

C ✻ ✻ ✻ : ELECTROLY CAP. (⧧), FILM CAP. (∓)
(1) EA xxx xxx 10, Electrolytic capacitor
One-way lead type,
Tolerance ± 20%
① ②
② Working voltage
① Capacity value

Examples ;
① Capacity value
0.1 µF ....104 4.7 µF ....475 100 µF 107
0.33 µF ....334 10 µF ....106 330 µF 337
1 µF ....105 22 µF ....226 1100 µF 118
2200 µF 228

② Working voltage
6.3 V ....006 25 V 025
10 V ....010 35 V 035
16 V ....016 50 V 050

(2) DF15 xxx 350, Plastic film capacitor
One-way type, Mylar ± 5% 50V
① Capacity value

Examples ;
① Capacity value
0.001 µF (1000pF) ....102 0.1 µF 104
0.0018 µF ....182 0.56 µF 564
0.01 µF ....103 1 µF 105
0.015 µF 153

NOTE : The above CODES (R ✻ ✻ ✻ , R ✻ ✻ ✻ , C ✻ ✻ ✻ , C ✻ ✻ ✻ and C ✻ ✻ ✻) are omitted on the schematic diagram in some case.
On the occasion, be confirmed common parts on the parts list.

REF. DESIG.	PART NO.	DESCRIPTION
		P216-BALANCED (XLR) CIRCUIT BOARD
		P216-CAPACITORS
CR91	4822 124 41536	ELECT 100 µF 35V
CR92	4822 122 30043	CERAMIC 0.01µF +80%-20% 50V
CR93	4822 124 41535	ELECT 100 µF 25V
CR94	4822 124 41535	ELECT 100 µF 25V
CR95	4822 122 30043	CERAMIC 0.01µF +80%-20% 50V
CR96	5322 126 10511	CERAMIC 0.001µF ± 10% CHIP
CR97	5322 126 10511	CERAMIC 0.001µF ± 10% CHIP
CT01 ∫ CT05	4822 122 40617	CERAMIC 0.1µF +80%-20% 50V
CT06	5322 122 32265	CERAMIC 100PF ± 5% 50V
CT07	4822 122 32185	CERAMIC 10PF ± 0.5PF 50V
CT61	4822 124 41535	ELECT 100 µ 25V
CT62	4822 122 30043	CERAMIC 0.01µF +80%-20% 50V
CT63	4822 122 30043	CERAMIC 0.01µF +80%-20% 50V
CW01	4822 122 32669	CERAMIC 0.047µF +80%-20% 50V
CW02	4822 122 32669	CERAMIC 0.047µF +80%-20% 50V
CW61	4822 124 41535	ELECT 100 µF 25V
CW62	4822 124 41535	ELECT 100 µF 25V
CW63 ∫ CW65	4822 122 40617	CERAMIC 0.1µF +80%-20% 50V
CW66	5322 122 34098	CERAMIC 0.01µF ± 10%
CW67	5322 122 34098	CERAMIC 0.01µF ± 10%
C201	4822 124 41535	ELECT 100 µF 25V
C202	4822 124 41535	ELECT 100 µF 25V
C203	5322 122 32531	CERAMIC 100PF ± 10% CHIP
C204	5322 122 32531	CERAMIC 100PF ± 10% CHIP
C205 ∫ C208	4822 122 31056	CERAMIC 12PF ± 5% CHIP
C211	5322 122 32531	CERAMIC 100PF ± 5% CHIP
C212	5322 122 32531	CERAMIC 100PF ± 5% CHIP
C213	4822 124 90364	ELECT 220 µF 16V
C214	4822 124 90364	ELECT 220 µF 16V
C215	5322 122 32531	CERAMIC 100 PF ± 5% CHIP
C216	5322 122 32531	CERAMIC 100 PF ± 5% CHIP
C217	4822 122 31056	CERAMIC 12PF ± 5% CHIP
C218	4822 122 31056	CERAMIC 12PF ± 5% CHIP
C221	5322 122 32531	CERAMIC 100PF ± 5% CHIP
C222	5322 122 32531	CERAMIC 100PF ± 5% CHIP
C223	4822 124 90364	ELECT 220 µF 16V
C224	4822 124 90364	ELECT 220 µF 16V
C225	5322 122 32531	CERAMIC 100 PF ± 5% CHIP
C226	5322 122 32531	CERAMIC 100 PF ± 5% CHIP
C227	4822 122 40617	CERAMIC 0.1µF +80%-20% 50V
C228	4822 122 40617	CERAMIC 0.1µF +80%-20% 50V
C261	4822 124 22277	ELECT 470µF 16V
C262	4822 124 22277	ELECT 470µF 16V
C263	4822 124 90364	ELECT 220µF 16V
C264	4822 124 90364	ELECT 220µF 16V
C265 ∫ C276	5322 122 34098	CERAMIC 0.01µF ± 10% CHIP
C281	4822 124 90361	ELECT 22µF 25V
C282	4822 124 41538	ELECT 220µF 35V
C301	5322 122 32531	CERAMIC 100PF ± 5% CHIP
C302	5322 122 32531	CERAMIC 100PF ± 5% CHIP
C303 ∫ C306	4822 124 90361	ELECT 22µF 25V
C307 ∫ C310	4822 122 31056	CERAMIC 12PF ± 5% CHIP

REF. DESIG.	PART NO.	DESCRIPTION
C311 ≀ C314	5322 122 32531	CERAMIC 100PF ± 5% CHIP
C315	4822 124 41535	ELECT 100 µF 25V
C316	4822 124 41535	ELECT 100 µF 25V
C317	4822 122 40617	CERAMIC 0.1µF +80%-20% 50V
C318	4822 122 40617	CERAMIC 0.1µF +80%-20% 50V
C321 ≀ C324	4822 122 31056	CERAMIC 12 PF ± 5% CHIP
C361	4822 124 22722	ELECT 1000µF 16V
C362	4822 124 22722	ELECT 1000µF 16V
C363 ≀ C366	4822 124 90364	ELECT 220µF 16V
C367 ≀ C374	5322 122 34098	CERAMIC 0.01µF ± 10% CHIP
		P216-RESISTORS
RR91	4822 117 10147	47KΩ ± 1% 1/10W CHIP
RR92	4822 111 90883	10KΩ ± 1% 1/10W CHIP
RR93	4822 111 90883	10KΩ ± 1% 1/10W CHIP
RR94	4822 116 83252	100Ω ± 1% 1/10W CHIP
RR95	4822 116 83227	1KΩ ± 1% 1/10W CHIP
RR96	4822 116 83227	1KΩ ± 1% 1/10W CHIP
RT01	4822 050 21211	120Ω ± 5% 1/4W
RT03	4822 052 10471	470Ω ± 5% 1/6W
RT04	4822 052 10103	10KΩ ± 5% 1/6W
RT05	4822 052 10101	100Ω ± 5% 1/6W
RT06	4822 111 30916	56Ω ± 5% 1/4W
RT07	4822 111 30916	56Ω ± 5% 1/4W
RT61	4822 116 60307	1Ω ± 5% 1/4W FUSE
RW01	4822 116 83252	100Ω ± 1% 1/10W CHIP
RW02	4822 116 83227	1KΩ ± 1% 1/10W CHIP
RW03	4822 116 83252	100Ω ± 1% 1/10W CHIP
RW04	4822 111 90883	10KΩ ± 1% 1/10W CHIP
RW05	4822 111 91365	470Ω ± 1% 1/10W CHIP
RW06 ≀ RW08	4822 116 83252	100Ω ± 1% 1/10W CHIP
RW61	4822 116 60307	1Ω ± 5% 1/4W FUSE
RW62	4822 050 22209	22Ω ± 5% 1/4W
R201	4822 111 91365	470Ω ± 1% 1/10W CHIP
R202	4822 111 91365	470Ω ± 1% 1/10W CHIP
R203 ≀ R206	4822 111 91366	5.6KΩ ± 1% 1/10W CHIP
R207	4822 111 91364	3.9KΩ ± 1% 1/10W CHIP
R208	4822 111 91364	3.9KΩ ± 1% 1/10W CHIP
R209	4822 116 83227	1.0KΩ ± 1% 1/10W CHIP
R210	4822 116 83227	1.0KΩ ± 1% 1/10W CHIP
R211 ≀ R216	4822 111 91366	5.6KΩ ± 1% 1/10W CHIP
R221	4822 111 91366	5.6KΩ ± 1% 1/10W CHIP
R222	4822 111 91366	5.6KΩ ± 1% 1/10W CHIP
R223	4822 116 83252	100Ω ± 1% 1/10W CHIP
R224	4822 116 83252	100Ω ± 1% 1/10W CHIP
R225	4822 116 83227	1KΩ ± 1% 1/10W CHIP
R226	4822 116 83227	1KΩ ± 1% 1/10W CHIP
R227	4822 116 82573	22KΩ ± 1% 1/10W CHIP
R228	4822 116 82573	22KΩ ± 1% 1/10W CHIP
R229	4822 111 90884	100KΩ ± 1% 1/10W CHIP
R230	4822 111 90884	100KΩ ± 1% 1/10W CHIP
R231	4822 052 10479	47Ω ± 5% 1/4W
R232	4822 052 10479	47Ω ± 5% 1/4W
R233 ≀ R238	4822 111 91366	5.6KΩ ± 1% 1/10W CHIP

REF. DESIG.	PART NO.	DESCRIPTION
R243	4822 116 83252	100Ω ± 1% 1/10W CHIP
R244	4822 116 83252	100Ω ± 1% 1/10W CHIP
R245	4822 116 83227	1KΩ ± 1% 1/10W CHIP
R246	4822 116 83227	1KΩ ± 1% 1/10W CHIP
R247	4822 116 82573	22KΩ ± 1% 1/10W CHIP
R248	4822 116 82573	22KΩ ± 1% 1/10W CHIP
R249	4822 111 90884	100KΩ ± 1% 1/10W CHIP
R250	4822 111 90884	100KΩ ± 1% 1/10W CHIP
R251	4822 052 10479	47Ω ± 5% 1/4W
R252	4822 052 10479	47Ω ± 5% 1/4W
R261 ≀ R264	4822 111 90731	47Ω ± 2% 1/4W FUSE
R280	4822 116 82573	22KΩ ± 1% 1/10W CHIP
R281	4822 117 10147	47KΩ ± 1% 1/10W CHIP
R282	4822 117 10147	47KΩ ± 1% 1/10W CHIP
R283	4822 116 82573	22KΩ ± 1% 1/10W CHIP
R284	4822 116 82573	22KΩ ± 1% 1/10W CHIP
R285	4822 117 10147	47KΩ ± 1% 1/10W CHIP
R286	4822 116 82573	22KΩ ± 1% 1/10W CHIP
R287	4822 116 82573	22KΩ ± 1% 1/10W CHIP
R291	4822 116 82573	22KΩ ± 1% 1/10W CHIP
R292	4822 116 82573	22KΩ ± 1% 1/10W CHIP
R293 ≀ R296	4822 111 91366	5.6KΩ ± 1% 1/10W CHIP
R301 ≀ R304	4822 111 90884	100KΩ ± 1% 1/10W CHIP
R305 ≀ R308	4822 116 83229	33KΩ ± 1% 1/10W CHIP
R309 ≀ R312	4822 117 11109	1.8KΩ ± 1% 1/10W CHIP
R313 ≀ R316	4822 111 90883	10KΩ ± 1% 1/10W CHIP
R317	4822 117 11111	2.2KΩ ± 1% 1/10W CHIP
R318	4822 117 11111	2.2KΩ ± 1% 1/10W CHIP
R319 ≀ R322	4822 116 83255	3.3KΩ ± 1% 1/10W CHIP
R323 ≀ R330	4822 111 91366	5.6KΩ ± 1% 1/10W CHIP
R331	4822 117 10147	47KΩ ± 1% 1/10W CHIP
R332	4822 117 10147	47KΩ ± 1% 1/10W CHIP
R361 ≀ R364	4822 111 90731	47Ω ± 2% 1/4W FUSE
		P216-SEMICONDUCTORS
D281	4822 130 83629	CHIP DIODE DA114
D282	4822 130 83629	CHIP DIODE DA114
D283	4822 130 81348	DIODE, S5566G VRRM=400V IF=1A
DR91	4822 130 83629	CHIP DIODE DA114
IC01	4822 209 83359	IC NJM5532M
IC02	4822 209 83359	IC NJM5532M
IC03 ≀ IC06	4822 209 30062	IC NJM5534M FLAT
IC07 ≀ IC10	4822 209 83662	IC NJM5532D
IC11	5322 209 60472	IC, LINE RECEIVER SN75157P
IC12	5322 209 60473	IC, LINE DRIVER SN75158P

REF. DESIG.	PART NO.	DESCRIPTION
IC13	4822 209 33225	IC, DIR CS8412-CP
IC14	4822 209 33226	IC, DIT CS8402-CP
IC15	4822 209 30426	IC 74HC00 FLAT
IC16	4822 209 61494	IC 74HC74 FLAT
IC17	4822 209 73951	IC, RESET PST523D
IC18	4822 209 33232	IC, +9V 0.5A FP NJM78M09FA
IC19	4822 209 31629	IC, +15V 0.5A FP NJM78M15FA
QR91	4822 130 63541	CHIP (TRANSISTOR) 2SC4081 (BQ)
QR92	4822 130 63544	CHIP (TRANSISTOR) 2SA1576 (FQ)
Q281	4822 130 63541	CHIP (TRANSISTOR) 2SC4081 (BQ)
Q282	4822 130 63541	CHIP (TRANSISTOR) 2SC4081 (BQ)
Q283	4822 130 63544	CHIP (TRANSISTOR) 2SA1576 (FQ)
Q285 ~ Q290	4822 130 43818	TRANSISTOR 2SC2878 (A, BRANK)
		P216-MISCELLANEOUS
JR01	4822 265 41382	JACK, MIN DIN SOCKET 8P
JT01	4822 265 20652	JACK, XLM-3-31PCV FOR XLR/INPUT
JT02	4822 265 20653	JACK, XLM-3-32PCV FOR XLR/ OUTPUT
J201	4822 265 20653	JACK, XLM-3-32PCV FOR XLR/ OUTPUT
J202	4822 265 20653	JACK, XLM-3-32PCV FOR XLR/ OUTPUT
J271		PLUG, 5P
J301	4822 265 20652	JACK, XLM-3-31PCV FOR XLR/INPUT
J302	4822 265 20652	JACK, XLM-3-31PCV FOR XLR/INPUT
LR91	4822 526 10543	FERRITE CORE
LT01	4822 526 10543	FERRITE CORE
LT02	4822 526 10543	FERRITE CORE
LT04	4822 526 10543	FERRITE CORE
LT05	4822 526 10543	FERRITE CORE
LT06	4822 148 81381	PULSE TRANSFORMER
LT07	4822 148 81381	PULSE TRANSFORMER
LT61	4822 242 73843	EMI FILTER
LW61	4822 242 73843	EMI FILTER
ST01	4822 277 21731	SLIDE SWITCH, OUT MODE
S301	4822 277 21733	SLIDE SWITCH, LEVEL
		P226-VR CIRCUIT BOARD
		P226-CAPACITOR
C319	4822 122 30043	CERAMIC 0.01 µF +80%-20% 50V
		P226-RESISTORS
R333	4822 100 12127	20KΩ-C VARIABLE
R334	4822 100 12127	20KΩ-C VARIABLE
		PR16-REMOTE (MAIN) CIRCUIT BOARD
		PR16-CAPACITORS
CR21 ~ CR25	5322 122 32265	CERAMIC 100PF ± 5% 50V
CR41	4822 124 23056	ELECT 47µF 16V
CR51	5322 122 32265	CERAMIC 100PF ± 5% 50V
CR52	5322 122 32265	CERAMIC 100PF ± 5% 50V
CR61	4822 122 30043	CERAMIC 0.01µF +80%-20% 50V
CR62	4822 122 30043	CERAMIC 0.01µF +80%-20% 50V
CR64	4822 122 30043	CERAMIC 0.01µF +80%-20% 50V
CR65	4822 122 30043	CERAMIC 0.01µF +80%-20% 50V
CR66	4822 124 23056	ELECT 47µF 16V
CR67	4822 122 30043	CERAMIC 0.01µF +80%-20% 50V

REF. DESIG.	PART NO.	DESCRIPTION
CR68	4822 124 23056	ELECT 47µF 16V
CR69 ~ CR72	4822 122 30043	CERAMIC 0.01µF +80%-20% 50V
CR81	5322 122 32265	CERAMIC 100PF ± 5% 50V
CR82	5322 122 32265	CERAMIC 100PF ± 5% 50V
		PR16-CAPACITORS (COMMON)
C***		ELCTROLYTIC CAPACITOR ONE-WAY LEAD TYPE, TORELANCE ± 20% CR63
		PR16-RESISTORS
RR27	4822 111 90951	10KΩ X 5 COMPO.
RR61	4822 116 60307	1Ω ± 5% 1/4W FUSIBLE
		PR16-RESISTORS (COMMON)
R***		CARBON FILM FIXED RESISYOR, ± 5% 1/6W: RR21~RR26, RR31 ~RR36 RR41~RR45, RR55~RR58 RR81~RR91
		PR16-SEMICONDUCTORS
DR06	4822 130 33305	DIODE 1SS176,MA165, 1SS254 30V 0.1A
DR07	4822 130 33305	DIODE 1SS176,MA165, 1SS254 30V 0.1A
DR41	4822 130 33305	DIODE 1SS176,MA165, 1SS254 30V 0.1A
DR61 ~ DR65	4822 130 82421	DIODE 1D3 1A/200V
DR81	4822 130 33305	DIODE 1SS176,MA165, 1SS254 30V 0.1A
IC21	4822 209 33228	MICROPROCESSOR REMOTE CPU SC87C51CGN40(OTP)
IC22	4822 209 33227	IC, EEPRPM X24C01A
IC23	4822 209 61847	IC, 5V 0.5A FP NJM78M05FA
IC24	4822 209 73951	IC, RESET PST523D
QR01	4822 130 63542	DIGITAL TRANSISTOR DT5A143ES
QR21	4822 130 63543	DIGITAL TRANSISTOR DT5C114ES
QR22	4822 130 63542	DIGITAL TRANSISTOR DT5A143ES
QR41	4822 130 42715	TRANSISTOR, 2SA608SP, 2SA1048, 2SA1309, 2SA933S
QR42	4822 130 61417	TRANSISTOR, 2SB1240 (Q,R)
QR43	4822 130 42298	TRANSISTOR, 2SC536SP, 2SC2458, 2SC3311, 2SC1740S
QR44	4822 130 61417	TRANSISTOR, 2SB1240 (Q,R)
QR51	4822 130 42715	TRANSISTOR, 2SA608SP, 2SA1048, 2SA1309, 2SA933S
QR52	4822 130 42715	TRANSISTOR, 2SA608SP, 2SA1048, 2SA1309, 2SA933S
QR81	4822 130 42715	TRANSISTOR, 2SA608SP, 2SA1048, 2SA1309, 2SA933S
QR82	4822 130 42715	TRANSISTOR, 2SA608SP, 2SA1048, 2SA1309, 2SA933S
QR83	4822 130 42298	TRANSISTOR, 2SC536SP, 2SC2458, 2SC3311, 2SC1740S
		PR16-MISCELLANEOUS
FR61	4822 252 51114	FUSE 1.0A 250V
JR12	4822 265 41381	JACK, 18P
JR21	4822 267 51343	PLUG, 9P SOCKET
JR22	4822 290 61202	TERMINAL, RCA PIN JACK 2P (ORANGE)
JR23	4822 265 41382	JACK, MIN DIN SOCKET 8P
JR61	4822 265 10085	JACK
JR62	4822 267 30978	JACK, FUSE CLIP
JR63	4822 256 30329	JACK, FUSE CLIP

REF. DESIG.	PART NO.	DESCRIPTION
SR61	4822 277 21732	SLIDE SWITCH
XR31	4822 242 81699	CERAMIC VIBRATOR 12MHZ CST12.0MTW (TP)
		PR26-REMOTE (TAC SW) CIRCUIT BOARD
		PR26-RESISTORS (COMMON)
R***		CARBON FILM FIXED RESISTOR, ± 5% 1/6W RR01 ~ RR11, RR51 ~ RR54
		PR26-SEMICONDUCTORS
DR01 ~ DR04	4822 130 83627	L.E.D. LT9002H (YELLOW)
DR05	4822 130 83628	L.E.D. LT9010D (RED)
DR51	4822 130 83626	L.E.D. LT9002E (GREEN)
DR52	4822 130 83625	L.E.D. LT9002D (RED)
		PR26-MISCELLANEOUS
JR11	4822 267 51342	PLUG, FPC CONNECTER 18P
SR01 ~ SR16	4822 276 13485	KEYBOARD SWITCH, TACT
		PR36-RC-5 IN/OUT CIRCUIT BOARD
		PR36-CAPACITOR
CR98	5322 122 32265	CERAMIC 100PF ± 5% 50V
		PR36-MISCELLANEOUS
JR02	4822 290 61202	TERMINAL, RCA PIN JACK 2P (ORANGE)
JR73	4822 265 30777	PLUG, CONNECTIVE PLUG 3P

NOTE ON SAFETY

Symbol ⚠ Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol ⚠. Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

Service Manual

74CDR1/01G

Compact Disc Recorder

V23255

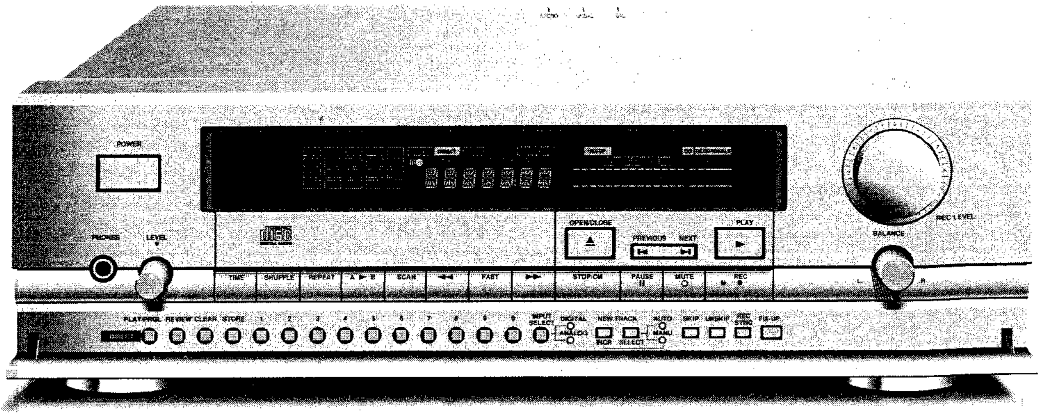

POWER
PHONES
LEVEL
OPEN/CLOSE
PREVIOUS
NEXT
PLAY
REC LEVEL
BALANCE
TIME
SHUFFLE
REPEAT
A ► B
SCAN
FAST
STOP/CM
PAUSE
MUTE
REC
PLAY/PROG.
REVIEW
CLEAR
STORE
INPUT SELECT
DIGITAL
ANALOG
NEW TRACK
INCR
SELECT
AUTO
MANU
SKIP
UNSKIP
REC SYNC
FIX-UP

TABLE OF CONTENTS

SECTION PAGE

1. Warnings 1
2. Technical specifications 2-4
3. Controls and connections 5
4. Dismantling instructions 6-9
5. Servicing hints 9
6. Block diagram 10
7. Wiring diagram 12
8. Circuit diagrams and printed boards
   8. 1. Power supply circuit diagram and p.c.b. 13
   8. 2. Servo circuit diagrams and p.c.b. 14-17
   8. 3. WOSP circuit diagrams and p.c.b. 18-21
   8. 4. Encoder circuit diagrams and p.c.b. 22-25
   8. 5. Decoder circuit diagrams and p.c.b. 26-29
   8. 6. BS DAC circuit diagram and p.c.b. 30-31
   8. 7. Control & display circuit diagrams and p.c.b. 32-33
   8. 8. XLR circuit diagram and p.c.b. 34-35
   8. 9. Headphone circuit diagram and p.c.b. 36
   8.10. Level and balance circuit diagram and p.c.b. 36
   8.11. Level detection circuit diagram 36
9. Start up procedure 38
10. Faultfinding diagnosis 41
10. Exploded views and mechanical partslists 42-44
11. Electrical partslist 45

marantz®

model CDR1

First issue: 1991

4822 725 24002

MZ 3066

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, MARANTZ company has created the ultimate in stereo sound.
Only **original MARANTZ parts** can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ equipment are generally available to our National Marantz Subsidiary or Agent.

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Parts can be ordered either by mail or by telex. In both cases, correct part number has to be specified.
The following information must be supplied to eliminate delays in processing your order:

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which part is required
5. Way of shipment
6. Signature: any order form or telex must be signed otherwise such part order will be considered as null and void.

MARANTZ INTERNATIONAL
Vestdijk 9
5600 MD Eindhoven
The Netherlands
Phone: +31/40.758290
Telefax: +31/40.75.82.99
Telex: 35000 PHTC NL routing IND NLMTFAT

PARTS ORDERING

Parts may be ordered at the following addresses:

AUSTRIA
MARANTZ
Hietzinger Kai 137a
1130 Wien

BELGIUM
SVD DIVISION MARANTZ
Industrialaan 1
1720 Groot-Bijgaarden
Belgium
Telex: 24466

CHILE
MARANTZ
DIVISION OF PHILIPS S.A.
AV. Santa Maria, 0760
Casilla 2687
Santiago
Telex: 240.239

DENMARK
MARANTZ
Horsvinget 5
2630 Tastrup

NORWAY
MARANTZ
Postboks 7034
Assiden
3007 Drammen

FRANCE
MARANTZ FRANCE
4 Rue Bernard Palissy
92600 Asnières
France
Telex: 611651

GERMANY
MARANTZ GERMANY GmbH
Alexanderstrasse 1
2000 Hamburg
Germany

THE NETHERLANDS
Elpro Marantz
Wint Hontlaan 28
3526 KV Utrecht
The Netherlands
Telex: 4748

SWEDEN
MARANTZ
Box 1324
171 25 Solna

FINLAND
MARANTZ
Kuortanegatan 1
00520 Helsingfors 52

GREAT BRITAIN
MARANTZ HiFi U.K. Ltd
Kingsbridge House
Padbury oaks
575-583 Bath Road
Long ford
Middlesex UB7 OEH
Faxnr.: 0753 680 428

GREECE
SHERTON ELECTRONICS S.A.
P.O.Box 21025
Hippocratus Street 188
Athens 11471
Greece
Telex: 216.795

JAPAN
MARANTZ JAPAN, Inc.
35-1, 7-chome, Sagamiono
Sagamihara-shi, Kanagawa
Japan

KUWAIT
AL ALAMIAH ELECTRONICS
Ussama Building
Fahd al Saleem Street
P.O.Box 23781
Safat-Kuwait
Telex: 22694

ITALY
MARANTZ ITALIANA S.P.A.
Via Chiese, 74
20126 Milano
Italy

SAUDI ARABIA
AL ALAMIAH ELECTRONICS
P.O.Box 5954
University Street
Riyadh 11432
Saudi Arabia
Telex: 401530

SOUTH AFRICA
MARANTZ
DIVISION OF PHILIPS S.A.
Main Road Martindale
P.O. Box. 58088
Newville 21114
South Africa

SPAIN
Euroservice S.A.
Bernardo obregón, 26
28012 Madrid
faxnr.: 3412 306 198

SWITZERLAND
MARANTZ
Technischer Service
Duenstrasse 3
3186 Düdingen
Switzerland

TURKEY
DOGRUOL Ltd.
I.M.C.
6 Blok N°6310
Unkapani
Istanbul
Turkey
Telex: 22085

MALTA
CACHIA & GALEA
Republic Street, 68D
Valetta
Telex: 1682

PORTUGAL
MARANTZ
Divisao philips S.A. service
Outurela-carnaxide
2795 LinDA-A-VELHA
Telex: 43906

All of the above locations are fully equipped to take care of your total service needs. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please, contact the nearest facility for the necessary assistance.

In case of difficulties, do not hesitate to contact the Technical Department at abovementioned address.

ESD

GB WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

F ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

D WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD).
Unsorgfältige Behandlung bei der Reparatur kann die Lebensdauer drastisch vermindern.
Sorgen sie dafür, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.
halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

NL WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

I AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

GB

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

NL

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde worden toegepast.

S Varo!

Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Alä katso säteeseen.

D

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden für Reparaturen sind Original-Ersatzteile zu verwenden.

I

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambiago identici a quelli specificati.

SF Varning!

Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

F

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agrées, seuls habilités à réparer votre appareil en panne".

TECHNICAL SPECIFICATIONS

General

1. Mains voltage /01G : 110V-127V-220V (±10%)
2. Mains frequency : 50 Hz
3. Power consumption mains, operating : 40 W
4. Inclination : max. 10°

Dimensions and weight

1. Apparatus tray closed : WxDxH 420 x 330 x 121/141 mm
2. Apparatus tray open : WxDxH 420 x 475 x 121/141 mm
3. Weight : 9,9 kg

Optical read-out system

1. Laser type : Semiconductor
2. Wavelength : 780 nm ±15 nm
3. Light output :
   (Total amount out of objective)
   During playing : max. 0,9 mW min. 0,7 mW
   During recording : 14 mW (Peak)
   11 mW (Writing level)

PLAYBACK

Unbalanced output

1. Output voltage : 2 Vrms ±1,5dB
2. Unbalance : max. 0,85dB
3. Output impedance : 200Ω
4. Amplitude linearity : max. ±0,05dB from 20Hz to 20kHz
5. Phase linearity : max. 0,6° from 20Hz to 20kHz
6. Signal to noise ratio : min. 95dB (A-wtg)
7. Dynamic range : min. 88dB from 20Hz to 20kHz
8. Total harmonic distortion + noise : min. 84dB from 20Hz to 20kHz
9. Outband attenuation : min. 60dB above 25kHz
10. Channel separation : min. 88dB from 20Hz to 20kHz
11. Muting during random access : min. 90dB

Balanced Output (XLR output)

1. Output voltage : 3 Vrms ±0,1dB
2. Unbalance : max. 0,2dB
3. Output impedance : 100Ω
4. Amplitude linearity : max. ±0,5dB from 20Hz to 20kHz
5. Signal to noise ratio : min. 92dB (A-wtg)
6. Dynamic range : min. 85dB from 20Hz to 20kHz
7. Total harmonic distortion + noise : min. 80dB from 20Hz to 20kHz
8. Outband attenuation : min. 60dB above 25kHz
9. Channel separation : min. 85dB from 20Hz to 20kHz
10. Muting during random access : min. 86dB

HEADPHONE

1. Output voltage : 0 to 6,5 Vrms ±2dB
2. Unbalance : max. 2dB
3. Output impedance : 120Ω
4. Load impedance range : 8 - 32 - 200 - 600 - 1000 - 2000Ω
5. Output power : 0 - 58 mW into 32Ω (max. 95 mW)
   0 - 49 mW into 600Ω (max. 78 mW)
   0 - 88 mW into 120Ω (max. 140 mW)

5. Signal to noise ratio : min. 87dB Load 600Ω
6. Dynamic range : min. 86dB from 20Hz to 20kHz Load 600Ω
7. Total harmonic distortion + noise : min. 80dB from 20Hz to 20kHz Load 600Ω
8. Channel separation : min. 65dB from 20Hz to 20kHz Load 600Ω
9. Phase linearity : max. ±0,35° from 20Hz to 20kHz

RECORD AND PLAYBACK

Unbalanced input - Unbalanced output

1. Input sensitivity : 0,7 Vrms for max. level (0dB on disc)
   0,11 Vrms for ref. level (-16dB on disc)
2. Unbalance : max. 1,5dB
3. Input impedance : 100kΩ
4. Amplitude linearity : max. ±0,06dB from 20Hz to 20kHz
5. Phase linearity : max. ±3,85° from 20Hz to 20kHz
6. Dynamic range : min. 90dB (A-wtg)
7. Dynamic range : min. 84dB from 20Hz to 20kHz
8. Total harmonic distortion + noise : min. 80dB from 20Hz to 20kHz
9. Outband attenuation : min. 60dB above 25kHz
10. Channel separation : min. 80dB from 20Hz to 20kHz

Balanced input - Balanced output

1. Input sensitivity : 3 Vrms for max. level (0dB on disc)
   0,475 Vrms for ref. level (-16dB on disc)
2. Unbalance : max. 08,5dB
3. Input impedance : 47kΩ
4. Amplitude linearity : max. ±0,06dB from 20Hz to 20kHz
5. Signal to noise ratio : min. 85dB (A-wtg)
6. Dynamic range : min. 84dB from 20Hz to 20kHz
7. Total harmonic distortion + noise : min. 78dB from 20Hz to 20kHz
8. Outband attenuation : min. 60dB above 25kHz
9. Channel separation : min. 75dB from 20Hz to 20kHz

RECORDING

Unbalanced input

1. Input sensitivity : 0,7 Vrms for max. level (0dB on disc)
   0,11 Vrms for ref. level (-16dB on disc)
2. Unbalance : max. 0,3dB
3. Amplitude linearity : max. ±0,01dB from 20Hz to 20kHz
4. Phase linearity : max. ±3,25° from 20Hz to 20kHz
5. Signal to noise ratio : min. 94dB (A-wtg)
6. Dynamic range : min. 88dB from 20Hz to 20kHz
7. Total harmonic distortion + noise : min. 84dB from 20Hz to 20kHz
8. Outband attenuation : min. 86dB from 25kHz to 2,8224MHz
9. Channel separation : min. 85dB from 20Hz to 20kHz

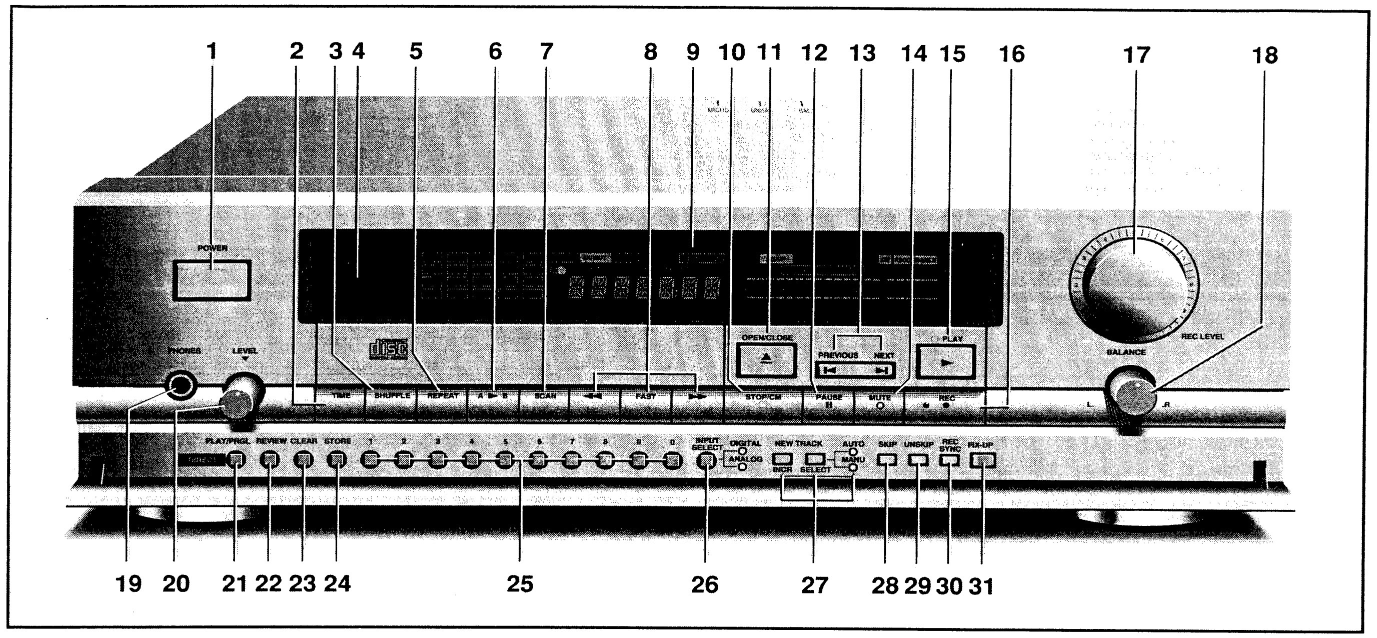
Balanced input (XLR)

1. Input sensitivity : 3 Vrms for max. level (0dB on disc)
   0,475 Vrms for ref. level (-16dB on disc)
2. Unbalance : max. 0,65dB
3. Amplitude linearity : max. ±0,02dB from 20Hz to 20kHz
4. Phase linearity : max. ±4,9° from 20Hz to 20kHz
5. Signal to noise ratio : min. 90dB (A-wtg)
6. Dynamic range : min. 85dB from 20Hz to 20kHz
7. Total harmonic distortion + noise : min. 84dB from 20Hz to 20kHz
8. Outband attenuation : min. 86dB from 25kHz to 2,8224MHz
9. Channel separation : min. 80dB from 20Hz to 20kHz

Microphone

1. Input sensitivity : 20 mV for max. level (0dB on disc)
   3 mV for ref. level (-16dB on disc)
2. Input impedance : 10kΩ
3. Microphone impedance range : 200 - 600 - 2000Ω
4. Amplitude linearity : max. ±1dB from 20Hz to 20kHz
5. Signal to noise ratio : min. 80dB (A-wtg)
6. Total harmonic distortion + noise : min. 65dB from 20Hz to 20kHz
7. Channel separation : min. 60dB from 20Hz to 20kHz

CONTROLS & CONNECTIONS


1
2
3
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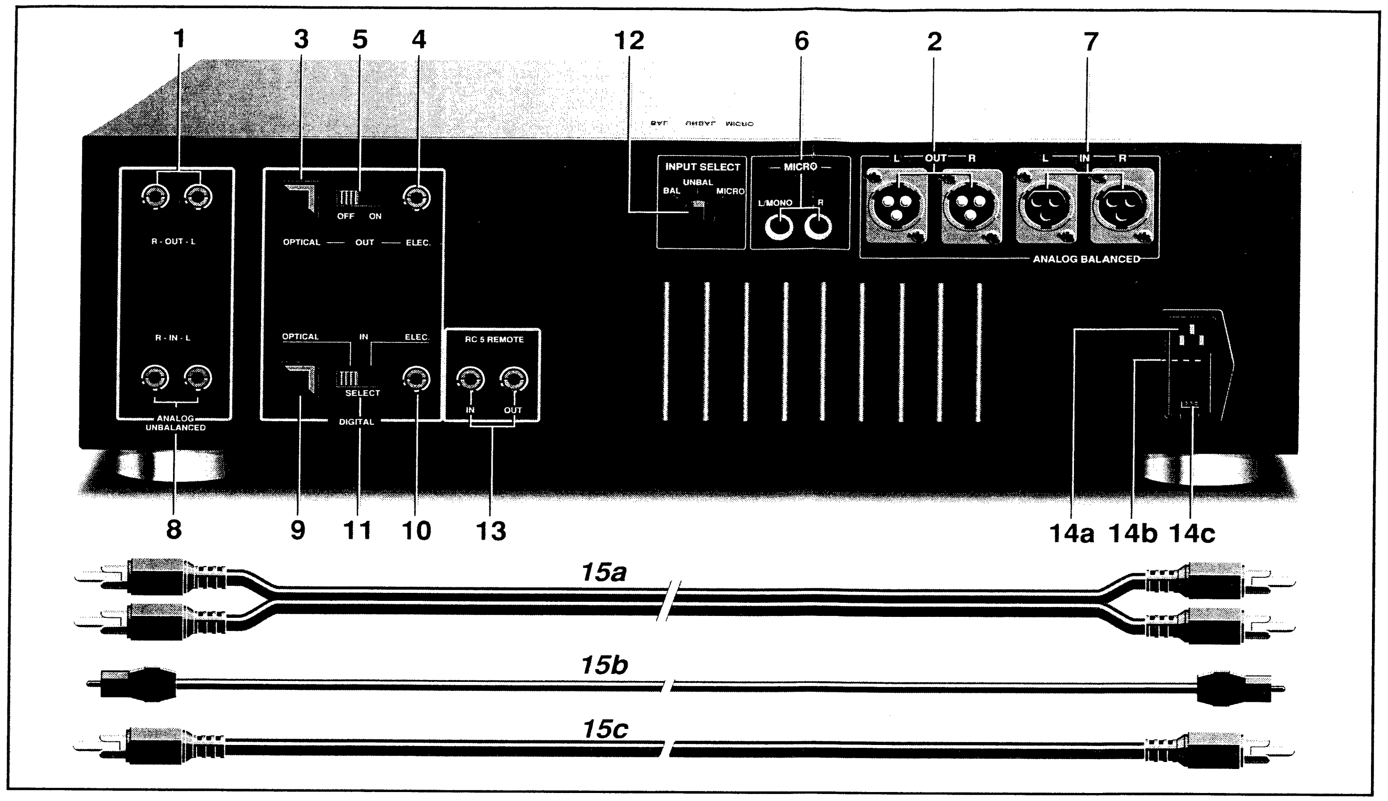
7
8
9
10
11
12
13
14
15
16
17
18
POWER
PHONES
LEVEL
TIME
SHUFFLE
REPEAT
A ▶ B
SCAN
FAST
OPEN/CLOSE
STOP/CM
PREVIOUS
NEXT
PAUSE
MUTE
PLAY
REC
BALANCE
REC LEVEL
PLAY/PRG.
REVIEW
CLEAR
STORE
INPUT SELECT
DIGITAL
ANALOG
NEW TRACK
INCR
SELECT
AUTO
SKIP
UNSKIP
REC SYNC
FIX UP
19
20
21
22
23
24
25
26
27
28
29
30
31

CONTROLS

Indication on set		Indication in circuit diagram	
1	POWER		1502
2	TIME		1837
3	SHUFFLE		1828
4	IR SENSOR		1802
5	REPEAT		1819
6	A ▶ B		1810
7	SCAN		1844
8	◀◀ and ▶▶		1834
		FAST	1843
			1846
9	DISPLAY		1805
10	STOP/CM		1813
11	OPEN/CLOSE		1812
12	PAUSE		1822
13	PREVIOUS and NEXT	PREVIOUS	1821
		NEXT	1830
14	MUTE		1831
15	PLAY		1839
16	RECORD		1840
17	RECORDING LEVEL		3550
18	BALANCE		3551
19	PHONES		1581
20	LEVEL		3582
21	DIRECT PLAY/PROGRAM		1838
22	REVIEW		1829
23	CLEAR		1820
24	STORE		1811
25	1-0 digit keys		
26	INPUT SELECT		1824
27	NEW TRACK	INCREMENT	1833
		SELECT AUTO/MANUAL	1842
28	SKIP		1814
29	UNSKIP		1823
30	REC SYNC		1832
31	FIX UP		1841

0	1815
1	1827
2	1836
3	1818
4	1845
5	1817
6	1826
7	1835
8	1816
9	1825


1
3
5
4
12
6
2
7
R - OUT - L
R - IN - L
ANALOG UNBALANCED
OPTICAL
OUT
ELEC.
OFF
ON
IN
SELECT
DIGITAL
RC 5 REMOTE
IN
OUT
INPUT SELECT
UNBAL
BAL
MICRO
L/MONO
R
L
OUT
R
L
IN
R
ANALOG BALANCED
8
9
11
10
13
14a
14b
14c
15a
15b
15c

CONNECTIONS

ANALOG OUTPUTS

1	ANALOG UNBALANCED OUT	1160
2	ANALOG BALANCED OUT	L1351 R1352

DIGITAL OUTPUTS

3	DIGITAL OUT OPTICAL	1170
4	DIGITAL OUT ELECTRICAL (COAXIAL)	1161
5	OFF ON	1140

ANALOG INPUTS

6	MICROPHONES	L1000 R1001
7	ANALOG BALANCED IN	L1201 R1202
8	ANALOG UNBALANCED IN	1301

DIGITAL INPUTS

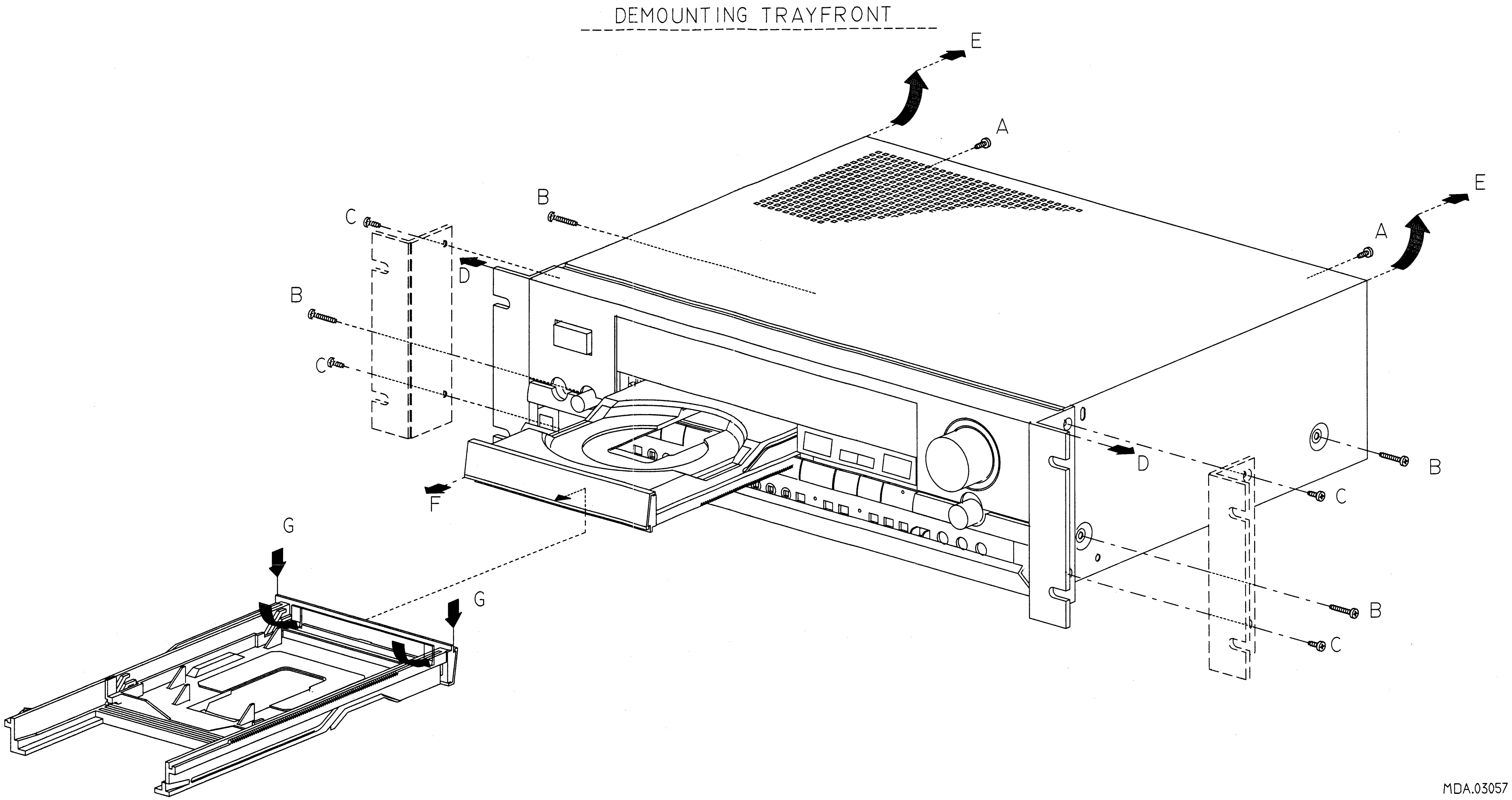
9	DIGITAL IN OPTICAL	1420
10	DIGITAL IN ELECTRICAL (COAXIAL)	1422
11	SELECT	1421

GENERAL CONNECTIONS

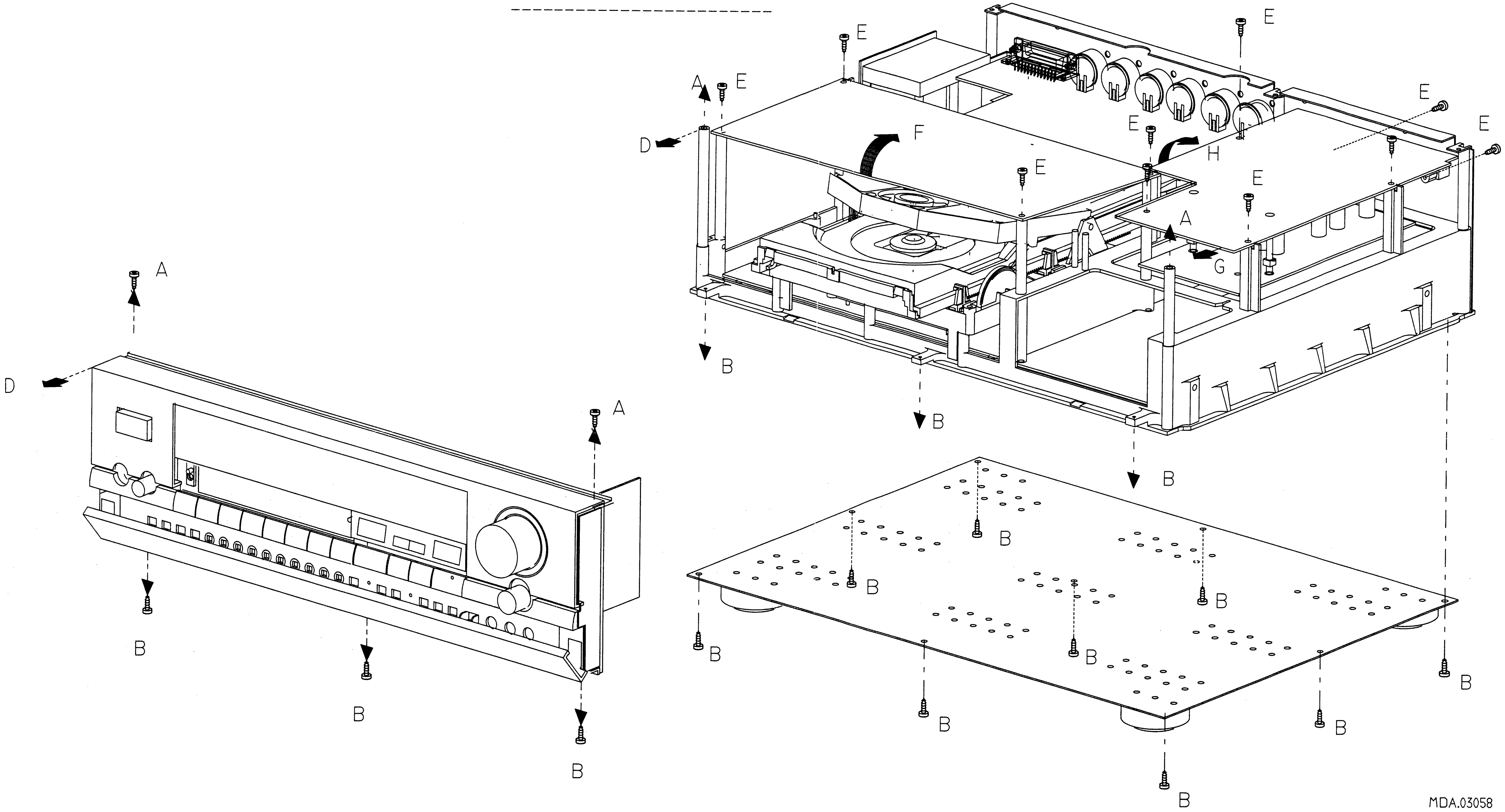
12	INPUT SELECT	1110
13	RC5 REMOTE	1423
14	a MAINS SOCKET b MAINS FUSE HOLDER c VOLTAGE SELECTOR	
15	a 4822 321 22832 b 4822 321 23302	

IMPORTANT NOTE ABOUT FIX UP

- If you do not yet wish to store the recording permanently, you can remove the CDR and add to the recording at any time or skip unwanted passages and/or tracks.
- If you do not wish to store anything else on the CDR, you can store the recording permanently by pressing **FIX UP** and then **within 2 seconds REC**(ord).
  FIX UP lights up on the display: the recording will now be stored. The storing will take 2 minutes and 58 seconds; this will be counted down on the display.
  The recording has now been stored on the CDR and can **no longer** be changed.


DEMOUNTING TRAYFRONT
A
A
B
B
B
B
C
C
C
C
D
D
E
E
F
G
G
MDA.03057

DEMOUNTING FRONT


E
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A
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E
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D
F
E
H
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A
G
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D
A
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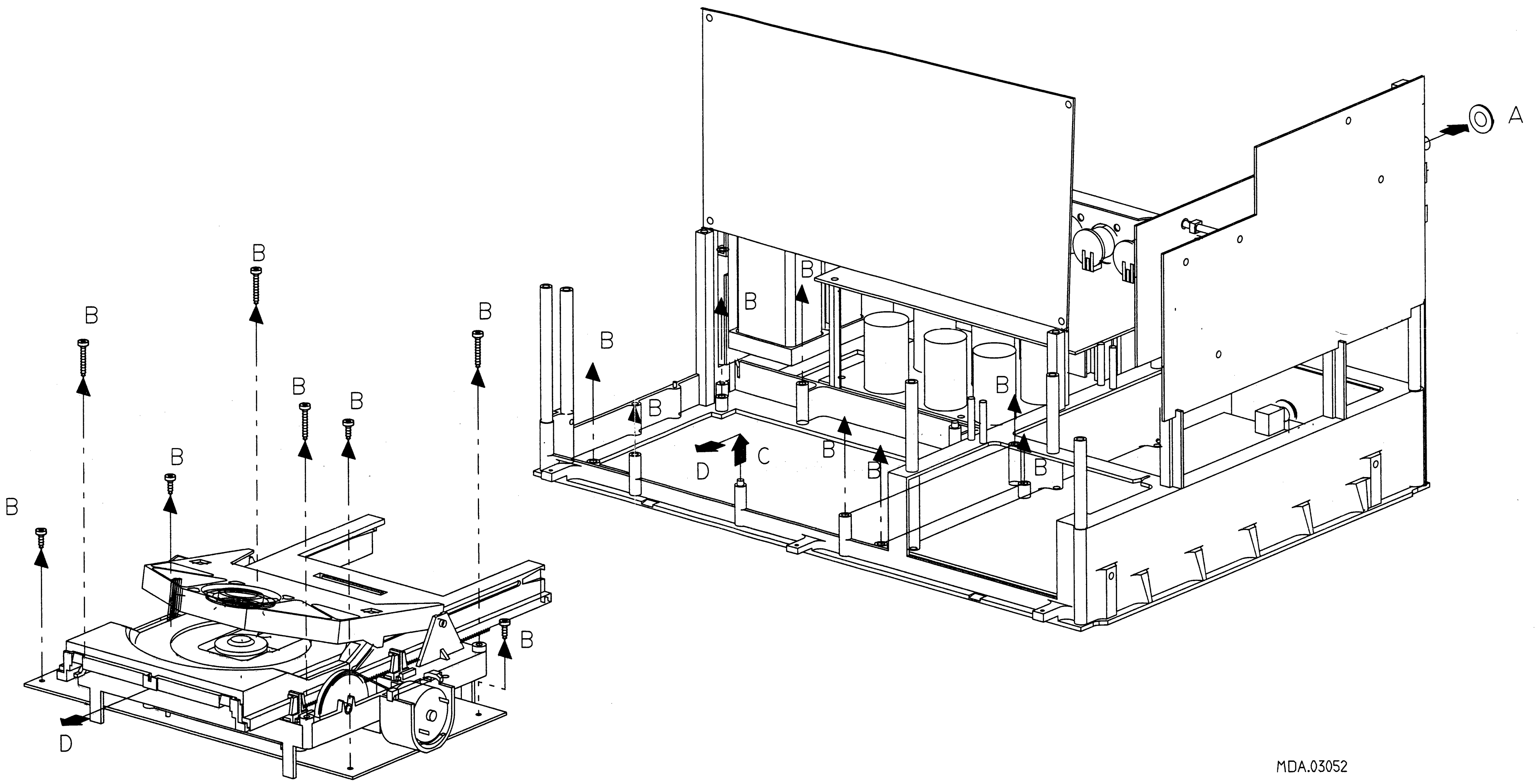
B
B
B
B
MDA.03058

DEMOUNTING TRAY-ASSY


A
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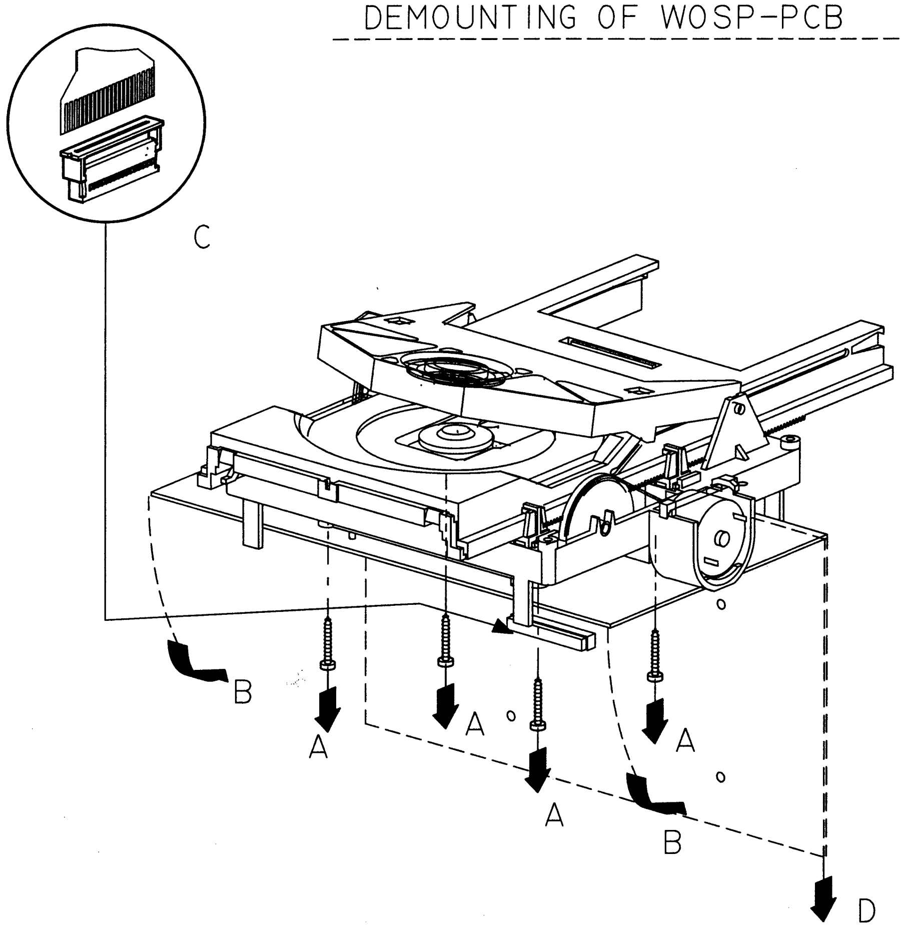
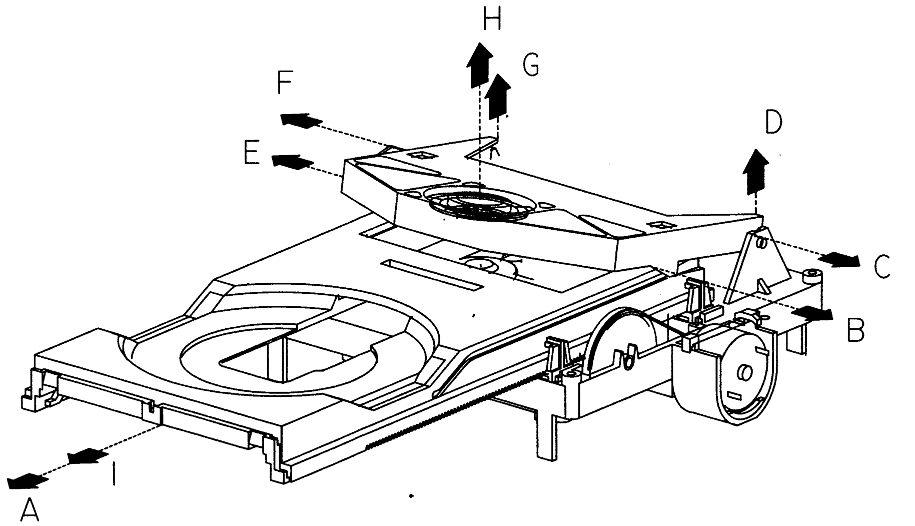
C
D
D
MDA.03052

DISASSEMBLY WOSP CDM

DEMOUNTING OF WOSP-PCB



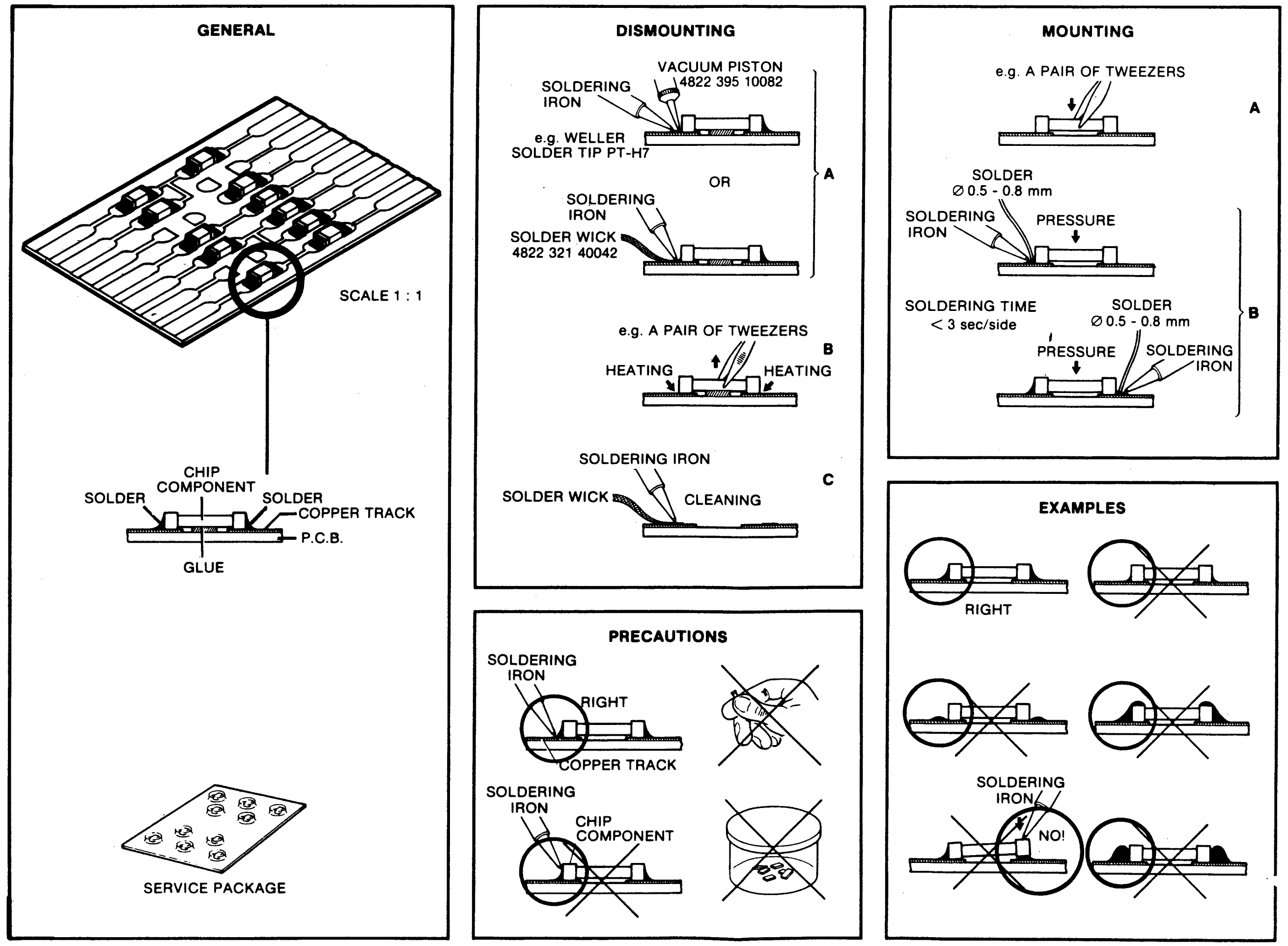
DEMOUNTING OF CDM



MDA.03054

SERVICE HINTS

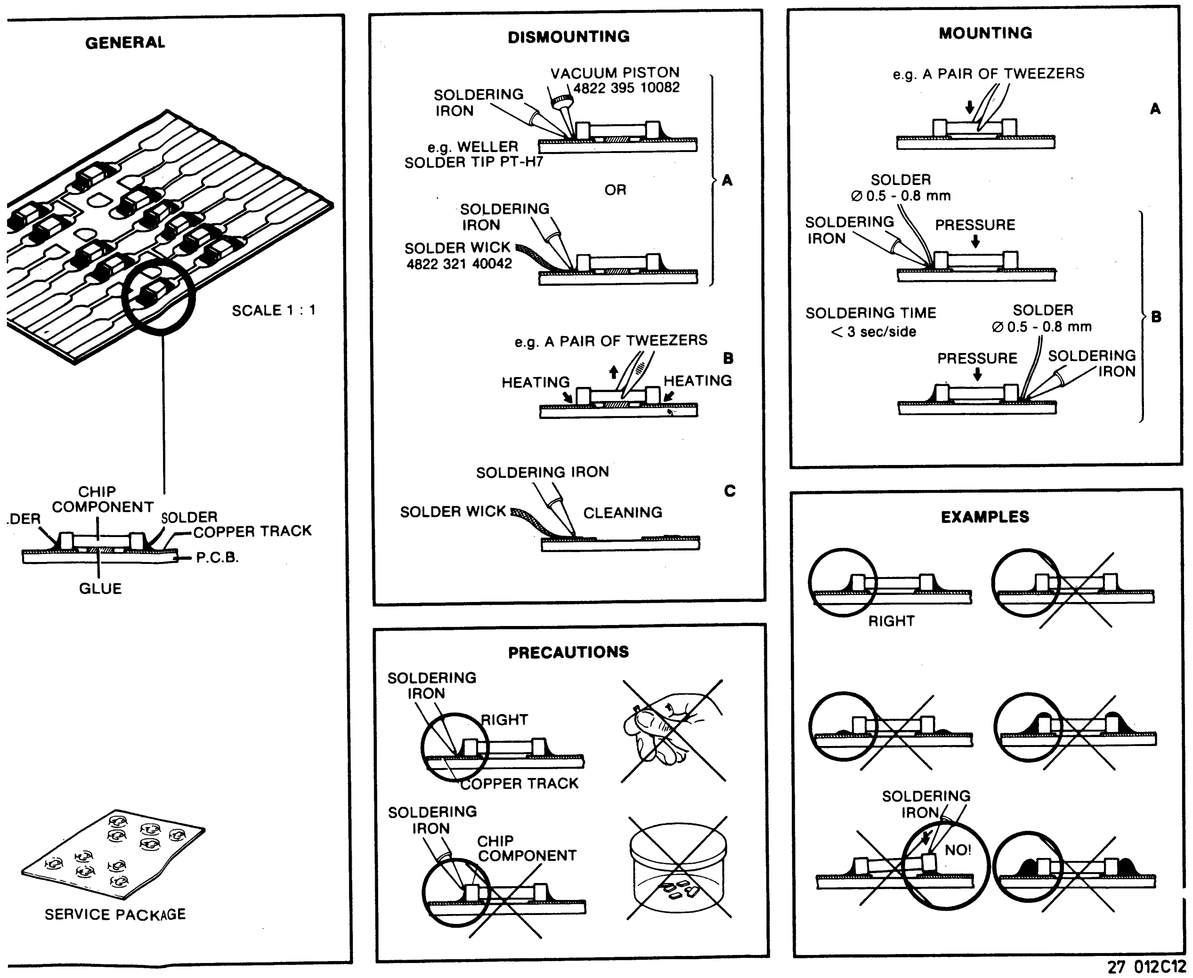
In the set chip componens have been applied.
For disassembly and assembly of chip components see the figure below.


GENERAL
SCALE 1 : 1
CHIP COMPONENT
SOLDER
SOLDER
COPPER TRACK
P.C.B.
GLUE
SERVICE PACKAGE
DISMOUNTING
SOLDERING IRON
VACUUM PISTON 4822 395 10082
e.g. WELLER SOLDER TIP PT-H7
OR
A
SOLDERING IRON
SOLDER WICK 4822 321 40042
e.g. A PAIR OF TWEEZERS
B
HEATING
HEATING
SOLDERING IRON
C
SOLDER WICK
CLEANING
MOUNTING
e.g. A PAIR OF TWEEZERS
A
SOLDER ∅ 0.5 - 0.8 mm
SOLDERING IRON
PRESSURE
SOLDERING TIME < 3 sec/side
SOLDER ∅ 0.5 - 0.8 mm
B
PRESSURE
SOLDERING IRON
PRECAUTIONS
SOLDERING IRON
RIGHT
COPPER TRACK
SOLDERING IRON
CHIP COMPONENT
EXAMPLES
RIGHT
SOLDERING IRON
NO!

27 012C12

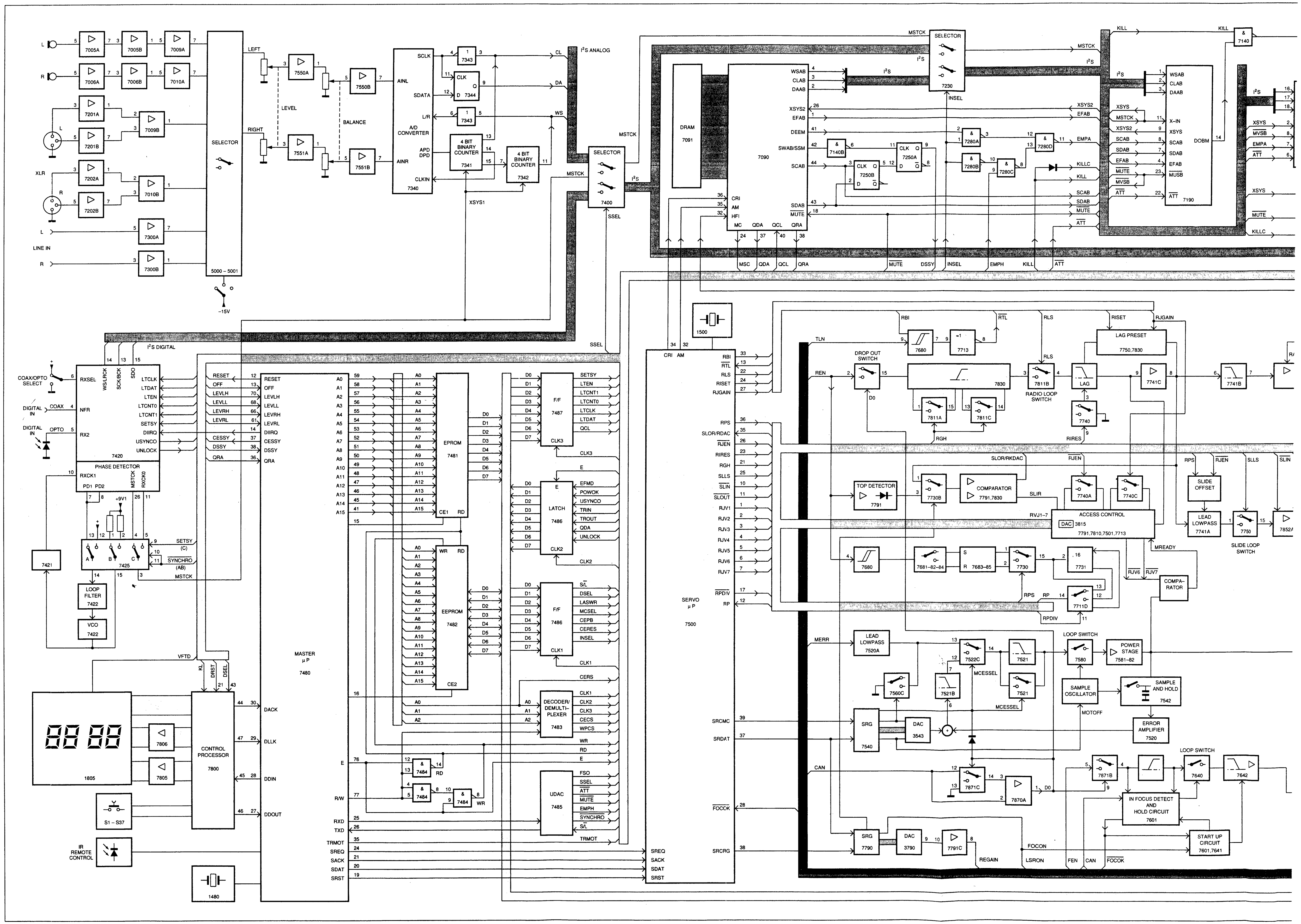
NTS

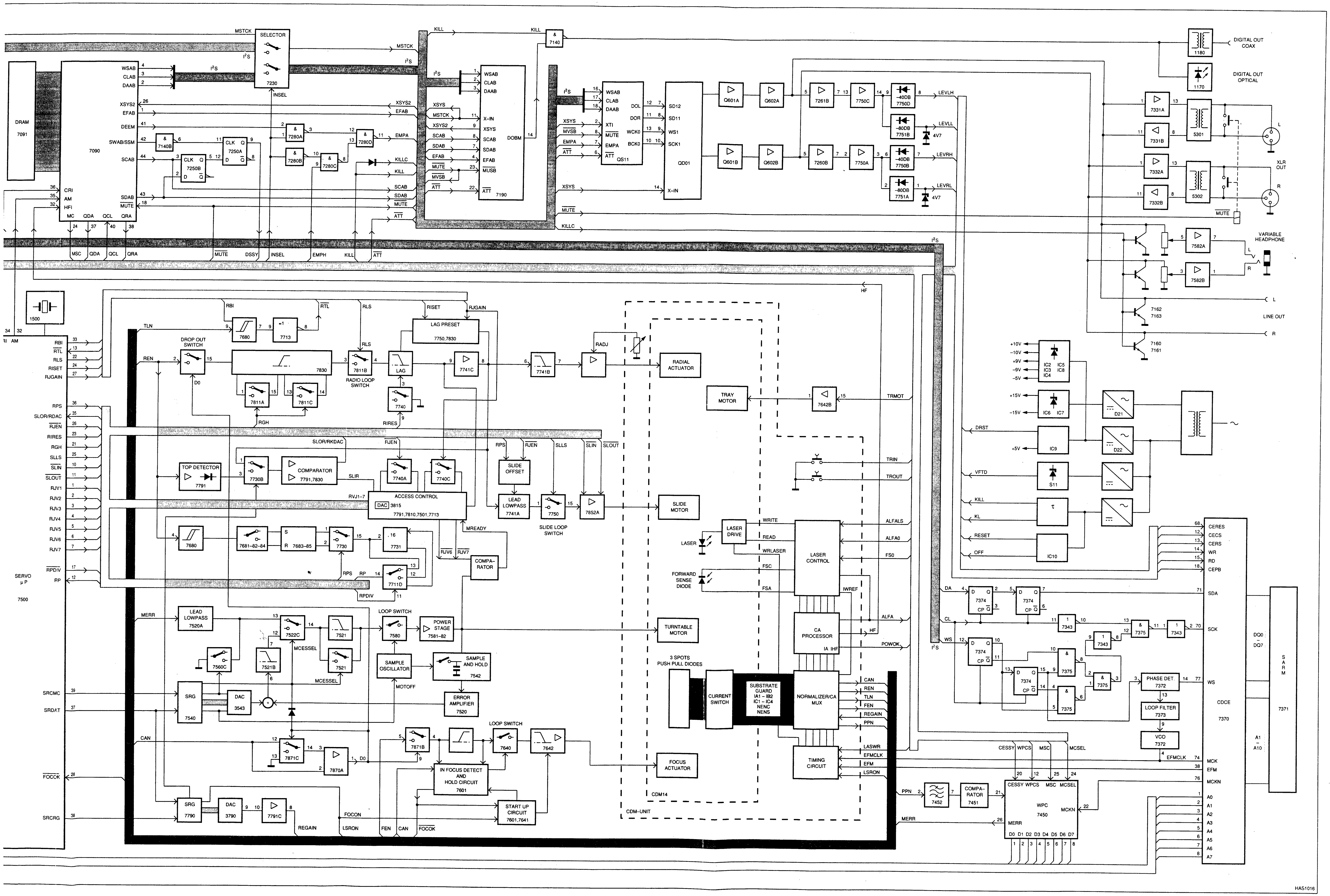
ip componens have been applied.
nbly and assembly of chip components see
low.


GENERAL
SCALE 1 : 1
CHIP COMPONENT
DER
SOLDER
COPPER TRACK
P.C.B.
GLUE
SERVICE PACKAGE
DISMOUNTING
VACUUM PISTON 4822 395 10082
SOLDERING IRON
e.g. WELLER SOLDER TIP PT-H7
OR
SOLDERING IRON
SOLDER WICK 4822 321 40042
A
e.g. A PAIR OF TWEEZERS
HEATING
HEATING
B
SOLDERING IRON
SOLDER WICK
CLEANING
C
MOUNTING
e.g. A PAIR OF TWEEZERS
A
SOLDER Ø 0.5 - 0.8 mm
SOLDERING IRON
PRESSURE
SOLDERING TIME < 3 sec/side
SOLDER Ø 0.5 - 0.8 mm
PRESSURE
SOLDERING IRON
B
PRECAUTIONS
SOLDERING IRON
RIGHT
COPPER TRACK
SOLDERING IRON
CHIP COMPONENT
EXAMPLES
RIGHT
SOLDERING IRON
NO!

27 012C12

BLOCKDIAGRAM

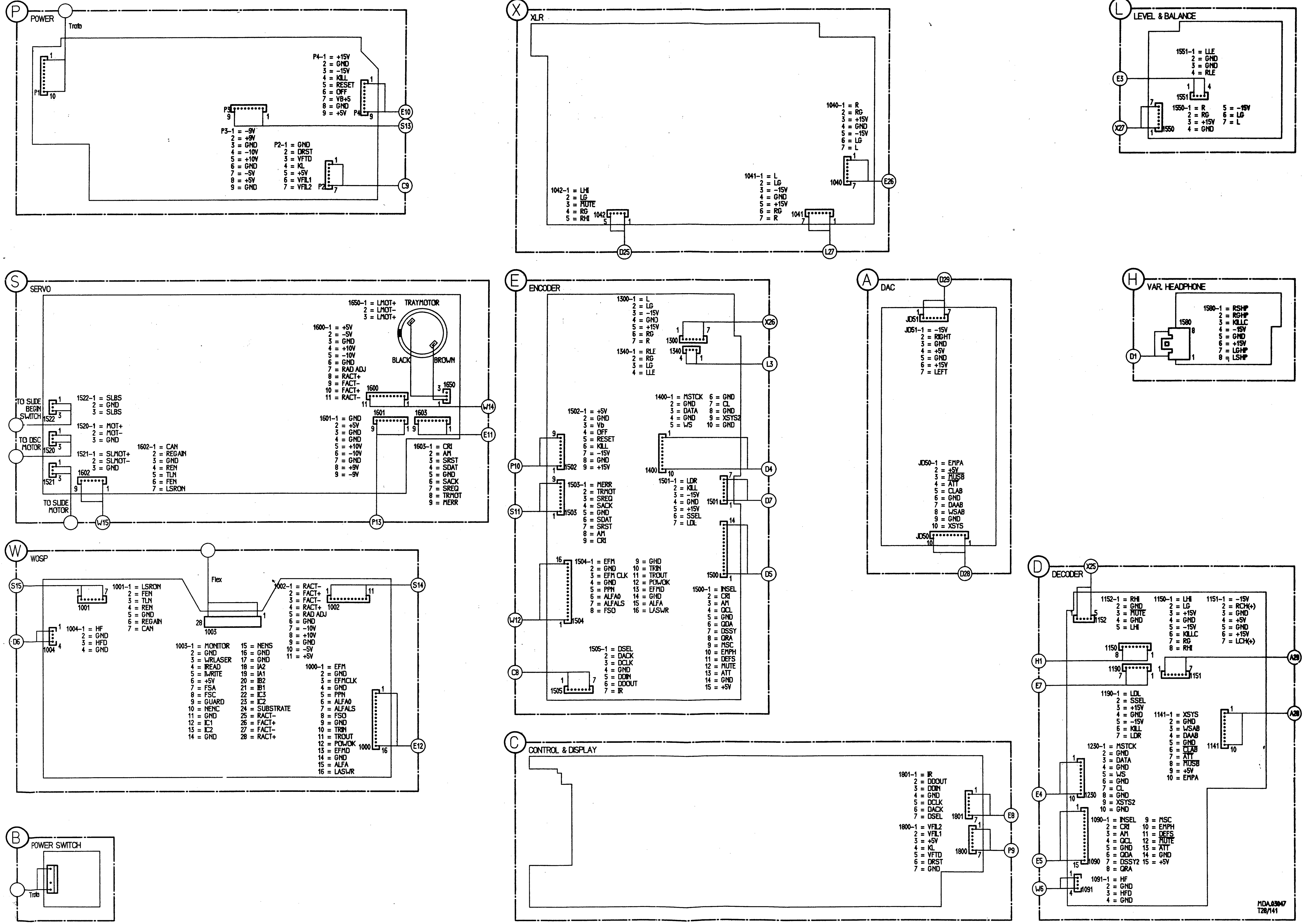

L
R
XLR
LINE IN
7005A
7005B
7009A
7006A
7006B
7010A
7201A
7201B
7009B
7202A
7202B
7010B
7300A
7300B
SELECTOR
5000 – 5001
-15V
LEFT
RIGHT
LEVEL
BALANCE
7550A
7550B
7551A
7551B
A/D CONVERTER
7340
SCLK
AINL
SDATA
L/R
APD DPD
AINR
CLKIN
7343
CLK D Q 7344
4 BIT BINARY COUNTER 7341
4 BIT BINARY COUNTER 7342
XSYS1
CL
DA
WS
I²S ANALOG
MSTCK
SELECTOR 7400
SSEL
I²S
DRAM 7091
7090
WSAB
CLAB
DAAB
XSYS2
EFAB
DEEM
SWAB/SSM
SCAB
SDAB
MUTE
CRI
AM
HFI
MC
QDA
QCL
QRA
7140B
7250A
7250B
7280A
7280B
7280C
7280D
EMPA
KILLC
KILL
ATT
SELECTOR 7230
INSEL
WSAB
CLAB
DAAB
X-IN
XSYS
SCAB
SDAB
EFAB
MUSB
DOBM
7190
7140
XSYS
MSTCK
XSYS2
MVSB
MSC
EMPH
DSSY
I²S DIGITAL
COAX/OPTO SELECT
DIGITAL IN COAX
DIGITAL IN OPTO
RXSEL
NFR
RX2
WS/LRCK
SCK/BCK
SDO
LTCLK
LTDAT
LTEN
LTCNT0
LTCNT1
SETSY
DIIRQ
USYNCO
UNLOCK
7420
PHASE DETECTOR
RXCK1
PD1 PD2
MSTCK
RXCK0
+9V1
7425
SETSY (C)
SYNCHRO (AB)
LOOP FILTER 7422
VCO 7422
7421
1805
7806
7805
CONTROL PROCESSOR 7800
VFTD
KL
DRST
DSEL
S1 – S37
IR REMOTE CONTROL
1480
MASTER µP 7480
RESET
OFF
LEVLH
LEVLL
LEVRH
LEVRL
CESSY
DSSY
QRA
DACK
DLLK
DDIN
DDOUT
E
R/W
RXD
TXD
TRMOT
SREQ
SACK
SDAT
SRST
EPROM 7481
CE1
RD
EEPROM 7482
WR
CE2
F/F 7487
CLK3
LATCH 7486
CLK2
F/F 7486
CLK1
DECODER/DEMULTI-PLEXER 7483
UDAC 7485
7484
EFMD
POWOK
USYNCO
TRIN
TROUT
QDA
UNLOCK
S/L
DSEL
LASWR
MCSEL
CEPB
CERES
INSEL
CERS
CECS
WPCS
FSO
SSEL
ATT
MUTE
EMPH
SYNCHRO
1500
SERVO µP 7500
RBI
RTL
RLS
RISET
RJGAIN
RPS
SLOR/RDAC
RJEN
RIRES
RGH
SLLS
SLIN
SLOUT
RJV1
RJV2
RJV3
RJV4
RJV5
RJV6
RJV7
RPDIV
RP
SRCMC
SRDAT
FOCOK
SRCRG
TLN
REN
MERR
CAN
DROP OUT SWITCH
D0
7680
7713
7830
7811A
7811C
7811B
RADIO LOOP SWITCH
LAG PRESET 7750,7830
LAG
7740
7741C
7741B
TOP DETECTOR 7791
7730B
COMPARATOR 7791,7830
SLIR
7740A
7740C
ACCESS CONTROL
DAC 3815
7791,7810,7501,7713
RVJ1-7
MREADY
COMPA-RATOR
SLIDE OFFSET
LEAD LOWPASS 7741A
7750
SLIDE LOOP SWITCH
7852A
7681-82-84
S R 7683-85
7730
7731
7711D
RPDIV
LEAD LOWPASS 7520A
7522C
7521
7560C
7521B
MCESSEL
LOOP SWITCH
7580
POWER STAGE 7581-82
SAMPLE OSCILLATOR
SAMPLE AND HOLD 7542
MOTOFF
ERROR AMPLIFIER 7520
SRG 7540
DAC 3543
7871B
7871C
7870A
7640
7642
IN FOCUS DETECT AND HOLD CIRCUIT 7601
START UP CIRCUIT 7601,7641
SRG 7790
DAC 3790
7791C
REGAIN
FOCON
LSRON
FEN
CAN
FOCOK


DRAM
7091
7090
WSAB
CLAB
DAAB
XSYS2
EFAB
DEEM
SWAB/SSM
SCAB
CRI
AM
HFI
MC
QDA
QCL
QRA
SDAB
MUTE
SELECTOR
MSTCK
I²S
7230
INSEL
7140B
CLK
7250A
7250B
7280A
7280B
7280C
7280D
EMPA
KILLC
KILL
ATT
MSC
DSSY
EMPH
7140
XSYS
X-IN
DOBM
MUSB
7190
XTI
QS11
DOL
DOR
WCK0
BCK0
SD12
SD11
WS1
SCK1
QD01
Q601A
Q602A
Q601B
Q602B
7261B
7750C
7260B
7750A
-40DB
7750D
-80DB
7751B
7750B
7751A
4V7
LEVLH
LEVLL
LEVRH
LEVRL
DIGITAL OUT COAX
1180
DIGITAL OUT OPTICAL
1170
7331A
7331B
7332A
7332B
5301
5302
XLR OUT
L
R
VARIABLE HEADPHONE
7582A
7582B
7162
7163
7160
7161
LINE OUT
HF
1500
RBI
RTL
RLS
RISET
RJGAIN
RPS
SLOR/RDAC
RJEN
RIRES
RGH
SLLS
SLIN
SLOUT
RJV1
RJV2
RJV3
RJV4
RJV5
RJV6
RJV7
RPDIV
RP
SERVO µP
7500
SRCMC
SRDAT
FOCOK
SRCRG
TLN
REN
DROP OUT SWITCH
D0
7680
7713
LAG PRESET
7750,7830
7830
7811A
7811B
7811C
RADIO LOOP SWITCH
LAG
7740
7741C
7741B
RADJ
RADIAL ACTUATOR
TRAY MOTOR
7642B
TRMOT
TOP DETECTOR
7791
7730B
COMPARATOR
7791,7830
7740A
7740C
SLIDE OFFSET
ACCESS CONTROL
DAC 3815
7791,7810,7501,7713
LEAD LOWPASS
7741A
7750
SLIDE LOOP SWITCH
7852A
SLIDE MOTOR
7681-82-84
7683-85
7730
7731
7711D
MREADY
COMPARATOR
RPDIV
MERR
7520A
7522C
7521
7560C
7521B
MCESSEL
LOOP SWITCH
7580
POWER STAGE
7581-82
TURNTABLE MOTOR
SAMPLE OSCILLATOR
SAMPLE AND HOLD
7542
MOTOFF
SRG
7540
DAC
3543
ERROR AMPLIFIER
7520
CAN
7871C
7870A
7871B
7640
7642
IN FOCUS DETECT AND HOLD CIRCUIT
7601
START UP CIRCUIT
7601,7641
FOCUS ACTUATOR
7790
3790
7791C
REGAIN
LSRON
FEN
FOCON
CDM14
CDM-UNIT
LASER
LASER DRIVE
FORWARD SENSE DIODE
WRITE
READ
WRLASER
FSC
FSA
LASER CONTROL
IWREF
CA PROCESSOR
IA IHF
3 SPOTS PUSH PULL DIODES
CURRENT SWITCH
SUBSTRATE GUARD
IA1 - IB2
IC1 - IC4
NENC
NENS
NORMALIZER/CA MUX
TIMING CIRCUIT
TRIN
TROUT
ALFALS
ALFA0
FS0
ALFA
POWOK
TLN
PPN
LASWR
EFMCLK
EFM
+10V
-10V
+9V
-9V
-5V
IC2 IC5
IC3 IC8
IC4
+15V
-15V
IC6 IC7
D21
DRST
+5V
IC9
D22
VFTD
S11
KL
RESET
OFF
IC10
DA
CL
WS
7374
7343
7375
CP
PHASE DET.
7372
LOOP FILTER
7373
VCO
CESSY
WPCS
MSC
MCSEL
7452
COMPARATOR
7451
WPC
7450
MCKN
MERR
D0 D1 D2 D3 D4 D5 D6 D7
CERES
CECS
CERS
WR
RD
CEPB
SDA
SCK
CDCE
7370
MCK
EFM
MCKN
A0
A1
A2
A3
A4
A5
A6
A7
DQ0 - DQ7
SARM
7371
A1 - A10
HAS1016

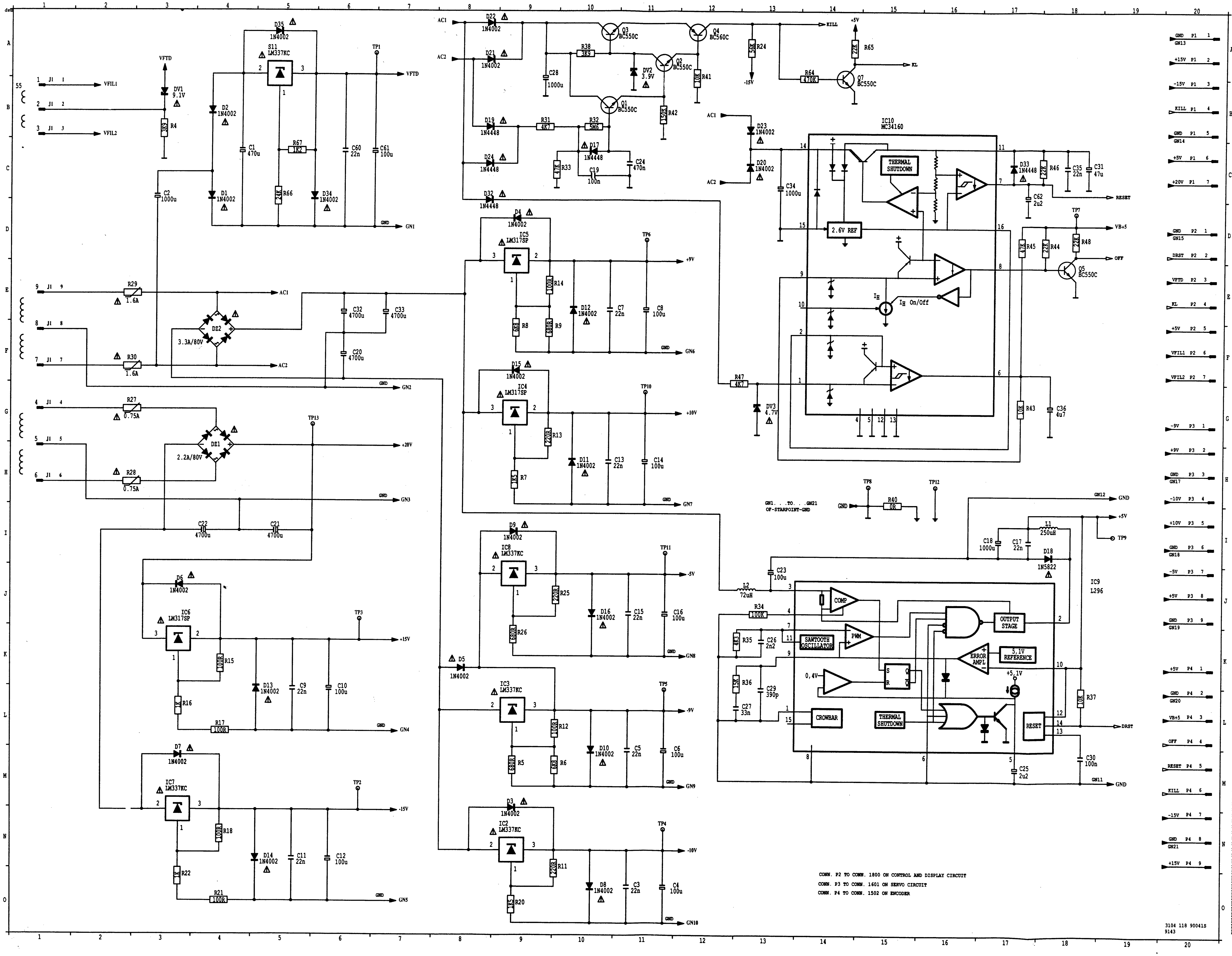
A0-10	- RAM Addressbus Bit 0 - 10
AINL	- Left Channel Analog Input
AINR	- Right Channel Analog Input
AINT	- Absorption Integrator
ALFA	- Actual Absorption
ALFA0	- Absorption Set
ALFALS	- Absorption Loop Switch
AM	- Additional Mute
APD	- Analog Power Down
ATT	- Attenuation
CA	- Central Apperture Signal
CAN	- Central Apperture Signal Normalized
CE	- Chip Enable
CECS	- CIRC EFM Chip Select
CEFS	- CIRC EFM Frame Sync
CEPB	- CIRC EFM Pause Bit
CERES	- CIRC EFM Reset
CERS	- CIRC EFM Register Select
CESSY	- CIRC EFM Subcode Sync
CL	- Clock
CLAB	- Clock Signal Decoder-A to Filter-B
CLK	- System Clock Input
CRI	- Counter Reset Inhit
CS	- Chip Select
D0 - 7	- Data Bus Bit 0 - 7
DA	- Data
DAAB	- Data Signal Decoder-A to Filter-B
DACK	- Display Acknowledge
DDIN	- Display Data Input
DDOUT	- Display Data Output
DEC	- Deemphasis Control
DEEM	- Deemphasis
DIIRQ	- Digital Input Interrupt Request
DO	- Drop Out
DOBM	- Digital Out Signal
DPD	- Digital Power Down
DSEL	- Display Select
DSSY	- Decoder Subcode Sync
EFAB	- Error Flag Decoder-A to Filter-B
EFM	- EFM Serial Data
EFMCLK	- Eight to Fourteen Modulation
EFMD	- Eight to Fourteen Modulation Detect
FEN	- Focus Error Normalized
FOCOK	- In Focus Signal
FOCON	- Focus On
FSA	- Forward Sense Diode Anode
FSC	- Forward Sense Diode Cathode
FSO	- Laser Power Set
GND	- Ground
HF	- High Frequency
HFI	- High Frequency Input
IA	- 3 Spot Push Pull Diode Current
IB1-2	- 3 Spot Push Pull Diode Current
IC1-4	- 3 Spot Push Pull Diode Current
IHF	- CA Current To Remainder Part Of CA Processor
INSEL	- Input Selector
IR	- Infrared Receiver Signal
IWREF	- Laser Writing Power Reference
L	- Left
L/R	- Left/Right Select
LASWR	- Laser Write/Non Read
LEVLH	- Analog Level Left High
LEVLL	- Analog Level Left Low
LEVRH	- Analog Level Right High
LEVRL	- Analog Level Right Low
LSRON	- Laser On
LTCLK	- Interface Data Bit Clock
LTCNT0-1	- Interface Control
LTDAT	- Interface Databus
LTEN	- Interface Enable
MC	- Motor Control Signal
MCK	- Master Clock
MCKN	- Master Clock NOT
MCSEL	- Motor Control Select
MERR	- Motor Control Error Signal

MREADY	- Turntable Motor Ready
MSC	- External Motor Control Input
MSTCK	- Master Clock
MUSB	- Soft Mute Signal
MUTE	- Mute Signal
NFR	- Output Level Convertor RX1
POWOK	- Laser Power OK
PPN	- Normalized Push Pull Signal
QCL	- Q-Channel Clock Signal
QDA	- Q-Channel Data Signal
QRA	- Q-channel Request Acknowledge
R	- Right
RADJ	- Radial Gain Adjust
RBI	- Radial Brake Inhibit
RD	- µP Read Signal
RD0 - 7	- RAM Databus Bit 0 - 7
REGAIN	- Radial Gain Current
REN	- Radial Error Normalized
RGH	- Radial Gain High
RIRES	- Radial Integrator Reset
RISET	- Radial Integrator Preset
RJEN	- Radial Jump Enable
RJGAIN	- Radial Jump Gain
RJV1-7	- Radial Jump Voltage
RLS	- Radial Loop Switch
RP	- Radial Polarity
RPDIV	- Radial Polarity Divider
RPS	- Radial Polarity Select
RST	- Hard Reset
RTL	- Radial Track Loss
RX1	- IEC Format Digital Audio Data Input (Coaxial Input)
RX2	- IEC Format Digital Audio Data Input (Optical Input)
RXD	- Serial Data
RXSEL	- Selection RX1 Or RX2
SACK	- Servo Acknowledge
SCAB	- Subcode Clock Decoder-A to Filter-B
SCK	- Serial Clock (IS)
SCK/BCK	- Shift/Bit Clock Audio Data
SCLK	- Serial Output Data Clock
SD0 - 1	- Serial Data (IS)
SDAB	- Subcode Data Decoder-A to Filter-B
SDAT	- Servo Data
SDATA	- Serial Data Output
SDO	- Serial Data Output Audio Databus
SETSY	- Setting Sync Signal
SLBS	- Slide Begin Switch
SLIN	- Slide Inwards Pulse
SLLS	- Slide Servo Loopswitch
SLOR/RKDAC	- Slide Outwards Request/ADC Determination Radial Amplitude
SLOUT	- Slide Outwards Pulse
SRCMC	- Shift Register Clock Motor Control
SRCRG	- Shift Register Clock Radial Gain
SRDAT	- Shift Register Data
SREQ	- Servo Request
SRST	- Servo Reset
SSEL	- Source Select
SWAB/SSM	- Subcode Word/Start-Stop Motor Signal
TLN	- Trackloss Normalized
TRIN	- Tray In Switch
TRMOT	- Tray Motor Control
TROUT	- Tray Out Switch
TX	- IEC Format Digital Data Output
TXD	- Serial Clock
TXOE	- Reset
UCH	- Subcode U Channel
UNLOCK	- Indication VCO Frequency
USYNC01	- Indication Start New Frame
WPCS	- Wobble Processor Chip Select
WR	- µP Write Signal
WRLASER	- Write Mode/Non Read Mode Laser
WS	- Word Select Signal
WS/LRCK	- Word Select Audio Data
WSAB	- Word Select Decoder-A to Filter-B
WSBD	- Word Select Filter-B to DAC
XSYS	- Oscillator Signal

WIRING DIAGRAM


P
POWER
Trafo
P1
1
10
P4-1 = +15V
2 = GND
3 = -15V
4 = KILL
5 = RESET
6 = OFF
7 = VB+5
8 = GND
9 = +5V
P4
1
9
P3
9
1
P3-1 = -9V
2 = +9V
3 = GND
4 = -10V
5 = +10V
6 = GND
7 = -5V
8 = +5V
9 = GND
P2-1 = GND
2 = DRST
3 = VFTD
4 = KL
5 = +5V
6 = VFIL1
7 = VFIL2
P2
1
7
E10
S13
C9
X
XLR
1040-1 = R
2 = RG
3 = +15V
4 = GND
5 = -15V
6 = LG
7 = L
1040
1
7
E26
1041-1 = L
2 = LG
3 = -15V
4 = GND
5 = +15V
6 = RG
7 = R
1041
7
1
1042-1 = LHI
2 = LG
3 = MUTE
4 = RG
5 = RHI
1042
5
1
D25
L27
L
LEVEL & BALANCE
1551-1 = LLE
2 = GND
3 = GND
4 = RLE
1
4
1551
E3
1550-1 = R
2 = RG
3 = +15V
4 = GND
5 = -15V
6 = LG
7 = L
7
1
1550
X27
S
SERVO
1650-1 = LMOT+
2 = LMOT-
3 = LMOT+
TRAYMOTOR
BLACK
BROWN
3
1650
1
1600-1 = +5V
2 = -5V
3 = GND
4 = +10V
5 = -10V
6 = GND
7 = RAD ADJ
8 = RACT+
9 = FACT-
10 = FACT+
11 = RACT-
1600
11
1
W14
1601
1603
9
1
9
1
E11
1601-1 = GND
2 = +5V
3 = GND
4 = GND
5 = +10V
6 = -10V
7 = GND
8 = +9V
9 = -9V
1603-1 = CRI
2 = AM
3 = SRST
4 = SDAT
5 = GND
6 = SACK
7 = SREQ
8 = TRMOT
9 = MERR
TO SLIDE BEGIN SWITCH
1522
1
3
1522-1 = SLBS
2 = GND
3 = SLBS
TO DISC MOTOR
1520
1
3
1520-1 = MOT+
2 = MOT-
3 = GND
1521
1
3
1521-1 = SLMOT+
2 = SLMOT-
3 = GND
1602
9
1
1602-1 = CAN
2 = REGAIN
3 = GND
4 = REN
5 = TLN
6 = FEN
7 = LSRON
TO SLIDE MOTOR
W15
P13
W
WOSP
Flex
S15
1001
1
7
1001-1 = LSRON
2 = FEN
3 = TLN
4 = REN
5 = GND
6 = REGAIN
7 = CAN
1003
28
1
1002-1 = RACT-
2 = FACT+
3 = FACT-
4 = RACT+
5 = RAD ADJ
6 = GND
7 = -10V
8 = +10V
9 = GND
10 = -5V
11 = +5V
1002
1
11
S14
D6
1004
1
4
1004-1 = HF
2 = GND
3 = HFD
4 = GND
1003-1 = MONITOR
2 = GND
3 = WRLASER
4 = IREAD
5 = IWRITE
6 = +5V
7 = FSA
8 = FSC
9 = GUARD
10 = NENC
11 = GND
12 = IC1
13 = IC2
14 = GND
15 = NENS
16 = GND
17 = GND
18 = IA2
19 = IA1
20 = IB2
21 = IB1
22 = IC3
23 = IC2
24 = SUBSTRATE
25 = RACT-
26 = FACT+
27 = FACT-
28 = RACT+
1000-1 = EFM
2 = GND
3 = EFMCLK
4 = GND
5 = PPN
6 = ALFA0
7 = ALFALS
8 = FSO
9 = GND
10 = TRIN
11 = TROUT
12 = POWOK
13 = EFMD
14 = GND
15 = ALFA
16 = LASWR
1000
1
16
E12
B
POWER SWITCH
Trafo
E
ENCODER
1300-1 = L
2 = LG
3 = -15V
4 = GND
5 = +15V
6 = RG
7 = R
1300
1
7
X26
1340-1 = RLE
2 = RG
3 = LG
4 = LLE
1340
4
1
L3
1400-1 = MSTCK
2 = GND
3 = DATA
4 = GND
5 = WS
6 = GND
7 = CL
8 = GND
9 = XSYS2
10 = GND
1400
1
10
D4
1502-1 = +5V
2 = GND
3 = Vb
4 = OFF
5 = RESET
6 = KILL
7 = -15V
8 = GND
9 = +15V
1502
9
1
P10
1503-1 = MERR
2 = TRMOT
3 = SREQ
4 = SACK
5 = GND
6 = SDAT
7 = SRST
8 = AM
9 = CRI
1503
9
1
S11
1501-1 = LDR
2 = KILL
3 = -15V
4 = GND
5 = +15V
6 = SSEL
7 = LDL
1501
7
1
D7
1504-1 = EFM
2 = GND
3 = EFM CLK
4 = GND
5 = PPN
6 = ALFA0
7 = ALFALS
8 = FSO
9 = GND
10 = TRIN
11 = TROUT
12 = POWOK
13 = EFMD
14 = GND
15 = ALFA
16 = LASWR
1504
16
1
W12
1500
14
1
D5
1500-1 = INSEL
2 = CRI
3 = AM
4 = QCL
5 = GND
6 = QDA
7 = DSSY
8 = QRA
9 = MSC
10 = EMPH
11 = DEFS
12 = MUTE
13 = ATT
14 = GND
15 = +5V
1505-1 = DSEL
2 = DACK
3 = DCLK
4 = GND
5 = DDIN
6 = DDOUT
7 = IR
1505
1
7
C8
A
DAC
D29
JD51
1
7
JD51-1 = -15V
2 = RIGHT
3 = GND
4 = +5V
5 = GND
6 = +15V
7 = LEFT
JD50-1 = EMPA
2 = +5V
3 = MUSB
4 = ATT
5 = CLAB
6 = GND
7 = DAAB
8 = WSAB
9 = GND
10 = XSYS
JD50
10
1
D28
H
VAR. HEADPHONE
1580-1 = RSHP
2 = RGHP
3 = KILLC
4 = -15V
5 = GND
6 = +15V
7 = LGHP
8 = LSHP
1580
8
1
D1
D
DECODER
X25
1152-1 = RHI
2 = GND
3 = MUTE
4 = GND
5 = LHI
1152
1
5
1150-1 = LHI
2 = LG
3 = +15V
4 = GND
5 = -15V
6 = KILLC
7 = RG
8 = RHI
1151-1 = -15V
2 = RCH(+)
3 = GND
4 = +5V
5 = GND
6 = +15V
7 = LCH(+)
1150
8
1
H1
1190
7
1
E7
1151
1
7
A29
1190-1 = LDL
2 = SSEL
3 = +15V
4 = GND
5 = -15V
6 = KILL
7 = LDR
1141-1 = XSYS
2 = GND
3 = WSAB
4 = DAAB
5 = GND
6 = CLAB
7 = ATT
8 = MUSB
9 = +5V
10 = EMPA
1141
1
10
A28
1230-1 = MSTCK
2 = GND
3 = DATA
4 = GND
5 = WS
6 = GND
7 = CL
8 = GND
9 = XSYS2
10 = GND
1230
1
10
E4
1090-1 = INSEL
2 = CRI
3 = AM
4 = QCL
5 = GND
6 = QDA
7 = DSSY2
8 = QRA
9 = MSC
10 = EMPH
11 = DEFS
12 = MUTE
13 = ATT
14 = GND
15 = +5V
1090
1
15
E5
1091-1 = HF
2 = GND
3 = HFD
4 = GND
1091
1
4
W6
MDA.03047
T28/141
C
CONTROL & DISPLAY
1801-1 = IR
2 = DDOUT
3 = DDIN
4 = GND
5 = DCLK
6 = DACK
7 = DSEL
1801
1
7
E8
1800-1 = VFIL2
2 = VFIL1
3 = +5V
4 = KL
5 = VFTD
6 = DRST
7 = GND
1800
1
7
P9

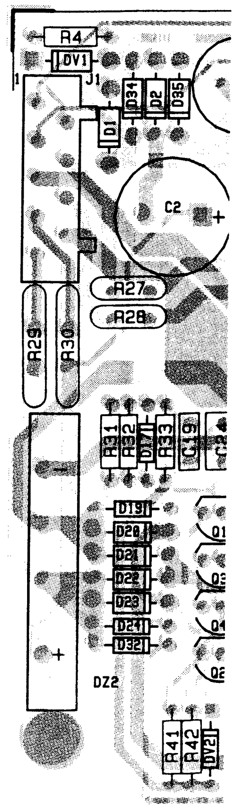
POWER SUPPLY CIRCUIT DIAGRAM

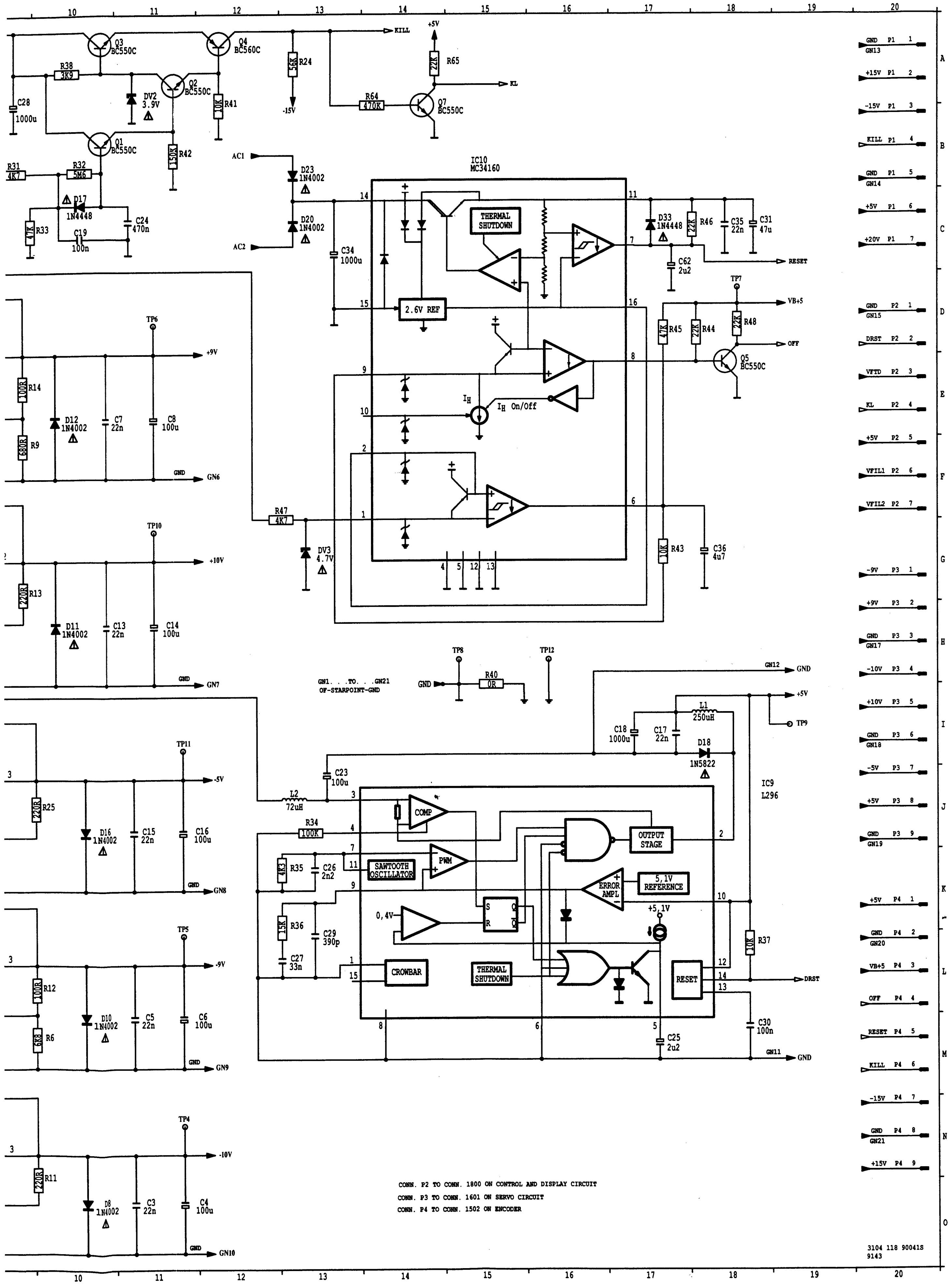

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
A B C D E F G H I J K L M N O
55
J1 1 VFIL1
J1 2
J1 3 VFIL2
VFTD
DV1 9.1V
R4 3K9
D35 1N4002
S11 LM337KC
D2 1N4002
D1 1N4002
C1 470u
R67 1K2
R66 2K4
D34 1N4002
C60 22n
C61 100u
TP1
VFTD
GND GN1
C2 1000u
J1 9
R29 1.6A
AC1
J1 8
DZ2 3.3A/80V
J1 7
R30 1.6A
AC2
C32 4700u
C33 4700u
C20 4700u
GND GN2
J1 4
R27 0.75A
J1 5
DZ1 2.2A/80V
TP13
+20V
J1 6
R28 0.75A
GND GN3
C22 4700u
C21 4700u
D6 1N4002
IC6 LM317SP
R15 100R
R16 1K
D13 1N4002
C9 22n
C10 100u
TP3
+15V
R17 100R
GND GN4
D7 1N4002
IC7 LM337KC
R18 100R
R22 1K
D14 1N4002
C11 22n
C12 100u
TP2
-15V
R21 100R
GND GN5
AC1
AC2
D22 1N4002
D21 1N4002
Q3 BC550C
Q4 BC560C
Q2 BC550C
Q1 BC550C
R38 3K9
C28 1000u
DV2 3.9V
R24 56K
R41 10K
R42 150K
-15V
KILL
+5V
R65 22K
R64 470K
Q7 BC550C
KL
D19 1N4448
R31 4K7
R32 5K6
D17 1N4448
R33 47K
C19 100n
C24 470n
D24 1N4448
D32 1N4448
D4 1N4002
IC5 LM317SP
R14 100R
R8 6K8
R9 680R
D12 1N4002
C7 22n
C8 100u
TP6
+9V
GND GN6
D15 1N4002
IC4 LM317SP
R13 220R
R7 1K5
D11 1N4002
C13 22n
C14 100u
TP10
+10V
GND GN7
D9 1N4002
IC8 LM337KC
R25 220R
R26 680R
D16 1N4002
C15 22n
C16 100u
TP11
-5V
GND GN8
D5 1N4002
IC3 LM337KC
R12 100R
R5 680R
R6 6K8
D10 1N4002
C5 22n
C6 100u
TP5
-9V
GND GN9
D3 1N4002
IC2 LM337KC
R11 220R
R20 1K5
D8 1N4002
C3 22n
C4 100u
TP4
-10V
GND GN10
AC1
D23 1N4002
D20 1N4002
AC2
C34 1000u
IC10 MC34160
THERMAL SHUTDOWN
2.6V REF
I_H
I_H On/Off
D33 1N4448
R46 22K
C35 22n
C31 47u
C62 2u2
RESET
TP7
VB+5
R45 47K
R44 22K
R48 22K
Q5 BC550C
OFF
R47 4K7
DV3 4.7V
R43 10K
C36 4u7
GN1. . .TO. . .GN21 OF-STARPOINT-GND
TP8
TP12
GND
R40 0R
GN12 GND
+5V
C18 1000u
C17 22n
L1 250uH
D18 1N5822
TP9
C23 100u
L2 72uH
R34 100K
R35 4K3
C26 2n2
R36 15K
C29 390p
C27 33n
IC9 L296
COMP
PWM
SAWTOOTH OSCILLATOR
OUTPUT STAGE
ERROR AMPL
5.1V REFERENCE
0,4V
+5.1V
CROWBAR
THERMAL SHUTDOWN
RESET
R37 10K
DRST
C30 100n
C25 2u2
GN11 GND
GND P1 1 GN13
+15V P1 2
-15V P1 3
KILL P1 4
GND P1 5 GN14
+5V P1 6
+20V P1 7
GND P2 1 GN15
DRST P2 2
VFTD P2 3
KL P2 4
+5V P2 5
VFIL1 P2 6
VFIL2 P2 7
-9V P3 1
+9V P3 2
GND P3 3 GN17
-10V P3 4
+10V P3 5
GND P3 6 GN18
-5V P3 7
+5V P3 8
GND P3 9 GN19
+5V P4 1
GND P4 2 GN20
VB+5 P4 3
OFF P4 4
RESET P4 5
KILL P4 6
-15V P4 7
GND P4 8 GN21
+15V P4 9

CONN. P2 TO CONN. 1800 ON CONTROL AND DISPLAY CIRCUIT
CONN. P3 TO CONN. 1601 ON SERVO CIRCUIT
CONN. P4 TO CONN. 1502 ON ENCODER

3104 118 90041S
9143

55	B 1
C1	C 4
C2	C 3
C3	O11
C4	O12
C5	M11
C6	L12
C7	E11
C8	E11
C9	L 5
C10	L 6
C11	N 5
C12	N 6
C13	H11
C14	H11
C15	J11
C16	J12
C17	I17
C18	I17
C19	C10
C20	F 6
C21	I 5
C22	I 4
C23	J13
C24	C11
C25	M17
C26	K13
C27	L13
C28	A 9
C29	L13
C30	M18
C31	C18
C32	E 6
C33	E 7
C34	C13
C35	C18
C36	G18
C60	C 6
C61	C 7
C62	C17
D1	C 4
D2	B 4
D3	M 9
D4	D 9
D5	K 8
D6	J 3
D7	M 3
D8	O10
D9	I 9
D10	M10
D11	H10
D12	E10
D13	K 5
D14	N 5
D15	F 9
D16	J10
D17	C10
D18	I18
D19	B 8
D20	C13
D21	A 8
D22	A 8
D23	B13
D24	C 8
D32	C 8
D33	C17
D34	C 6
D35	A 5
DV1	B 3
DV2	A11
DV3	G13
DZ1	H 4
DZ2	F 4
IC2	N 9
IC3	K 9
IC4	G 9
IC5	D 9
IC6	J 3
IC7	M 3
IC8	I 9
IC9	J18
IC10	B15
J1	H 1
J1	G 1
J1	G 1
J1	F 1
J1	F 1
J1	E 1
J1	B 1
J1	B 1
J1	B 1
L1	I18
L2	J13
P1	A20
P1	C20
P1	C20
P1	B20
P1	B20
P1	B20
P1	A20
P2	F20
P2	F20
P2	E20
P2	E20
P2	E20
P2	D20
P2	D20
P3	J20
P3	J20
P3	I20
P3	I20
P3	I20
P3	H20
P3	H20
P3	G20
P3	G20
P4	M20
P4	L20
P4	L20
P4	K20
P4	K20
P4	N20
P4	N20
P4	M20
P4	M20
Q1	B11
Q2	A11
Q3	A11
Q4	A12
Q5	E18
Q7	A14
R4	B 3
R5	M 9
R6	M10
R7	H 9
R8	F 9
R9	F10
R11	N10
R12	L10
R13	G10
R14	E10
R15	K 4
R16	L 3
R17	L 4
R18	N 4
R20	O 9
R21	O 4
R22	O 3
R24	A13
R25	J10
R26	K 9
R27	G 2
R28	H 2
R29	E 2
R30	F 2
R31	B 9
R32	B10
R33	C10
R34	J13
R35	K13
R36	K13
R37	L18
R38	A10
R40	H15
R41	A12
R42	B11
R43	G17
R44	D18
R45	D17
R46	C18
R47	F13
R48	D18
R64	A14
R65	A15
R66	C 5
R67	C 5
S11	A 5
TP1	A 6
TP2	M 6
TP3	J 6
TP4	N11
TP5	K11
TP6	D11
TP7	D18
TP8	H15
TP9	I19
TP10	G11
TP11	I11
TP12	H16
TP13	G 5


R4
DV1
J1
1
D34
D2
D35
D1
C2
R27
R28
R29
R30
R31
R32
R33
C19
D19
D20
D21
D22
D23
D24
D32
DZ2
R41
R42
DV2

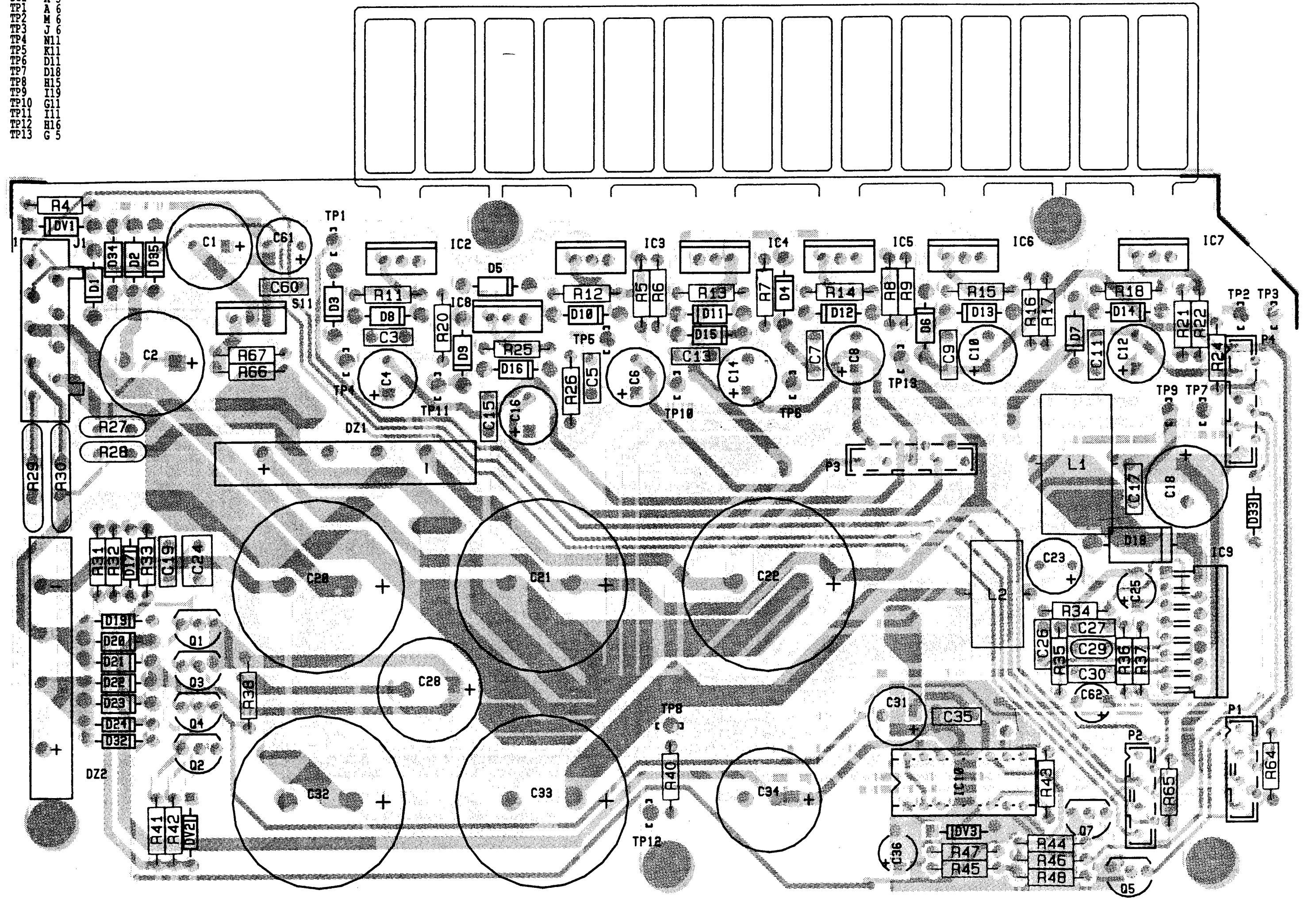

10
11
12
13
14
15
16
17
18
19
20
Q3
BC550C
Q4
BC560C
Q2
BC550C
Q1
BC550C
R38
3K9
DV2
3.9V
C28
1000u
R41
10K
R42
150K
R24
56K
-15V
KILL
+5V
R65
22K
R64
470K
Q7
BC550C
KL
R31
4K7
R32
5K6
D17
1N4448
R33
C24
470n
C19
100n
AC1
AC2
D23
1N4002
D20
1N4002
C34
1000u
IC10
MC34160
THERMAL SHUTDOWN
2.6V REF
IH
IH On/Off
D33
1N4448
R46
22K
C35
22n
C31
47u
C62
2u2
RESET
TP7
VB+5
R45
47K
R44
22K
R48
22K
Q5
BC550C
OFF
R47
4K7
DV3
4.7V
R43
10K
C36
4u7
TP6
+9V
R14
100R
R9
330R
D12
1N4002
C7
22n
C8
100u
GND
GN6
TP10
+10V
R13
220R
D11
1N4002
C13
22n
C14
100u
GN7
GN1. . . .TO. . . .GN21
OF-STARPOINT-GND
TP8
TP12
R40
0R
GN12
C18
1000u
C17
22n
L1
250uH
D18
1N5822
TP9
C23
100u
L2
72uH
R34
100K
R35
4K3
C26
2n2
R36
15K
C29
390p
C27
33n
IC9
L296
COMP
SAWTOOTH OSCILLATOR
PWM
0,4V
OUTPUT STAGE
ERROR AMPL
5,1V REFERENCE
+5,1V
CROWBAR
THERMAL SHUTDOWN
RESET
R37
10K
C30
100n
C25
2u2
DRST
GN11
TP11
-5V
R25
220R
D16
1N4002
C15
22n
C16
100u
GN8
TP5
-9V
R12
100R
R6
56R
D10
1N4002
C5
22n
C6
100u
GN9
TP4
-10V
R11
220R
D8
1N4002
C3
22n
C4
100u
GN10
GND P1 1
GN13
+15V P1 2
-15V P1 3
KILL P1 4
GND P1 5
GN14
+5V P1 6
+20V P1 7
GND P2 1
GN15
DRST P2 2
VFTD P2 3
KL P2 4
+5V P2 5
VFIL1 P2 6
VFIL2 P2 7
-9V P3 1
+9V P3 2
GND P3 3
GN17
-10V P3 4
+10V P3 5
GND P3 6
GN18
-5V P3 7
+5V P3 8
GND P3 9
GN19
+5V P4 1
GND P4 2
GN20
VB+5 P4 3
OFF P4 4
RESET P4 5
KILL P4 6
-15V P4 7
GND P4 8
GN21
+15V P4 9
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O

CONN. P2 TO CONN. 1800 ON CONTROL AND DISPLAY CIRCUIT
CONN. P3 TO CONN. 1601 ON SERVO CIRCUIT
CONN. P4 TO CONN. 1502 ON ENCODER

3104 118 90041S
9143

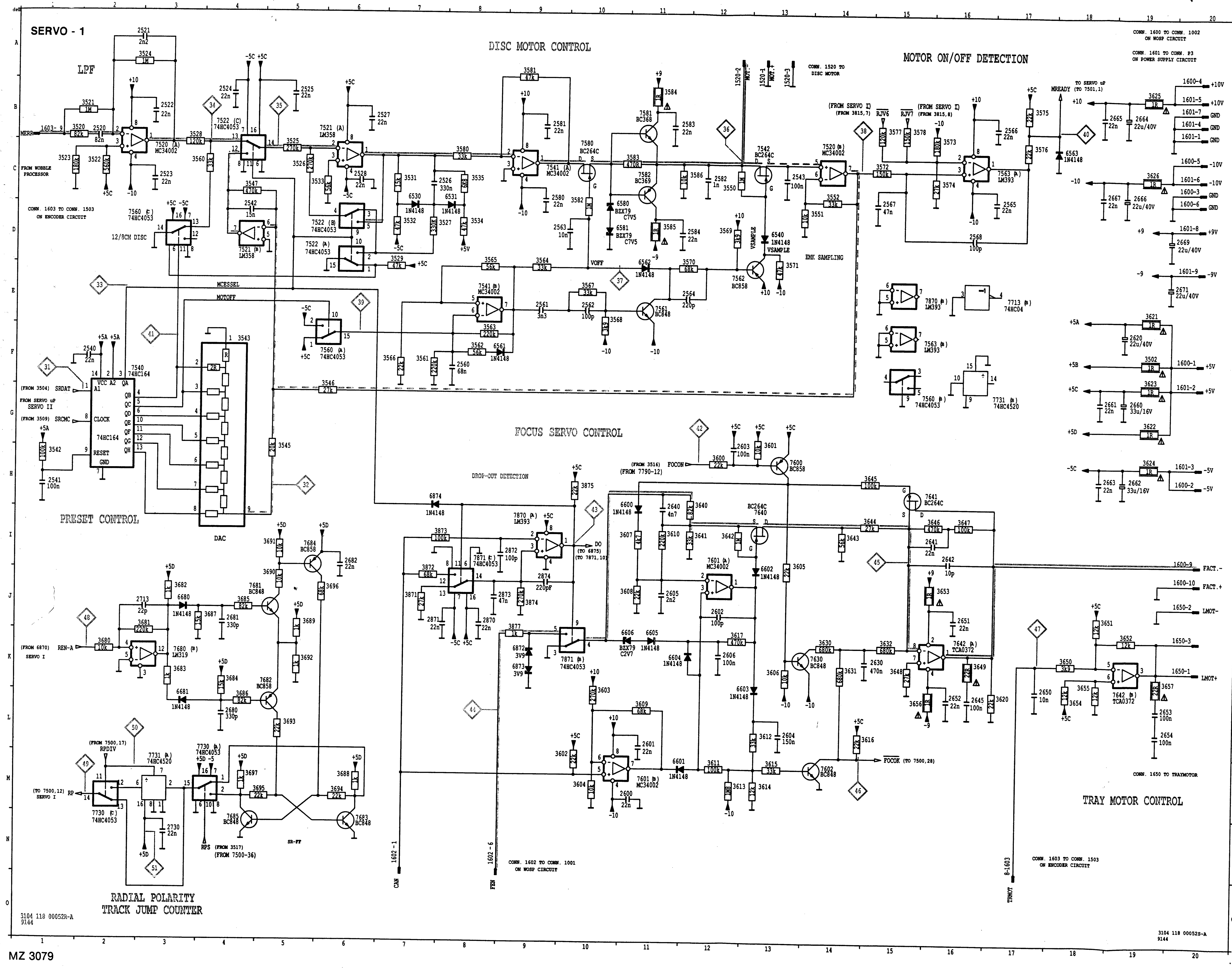
55	B 1
C1	C 4
C2	C 3
C3	O11
C4	O12
C5	M11
C6	L12
C7	E11
C8	E11
C9	L 5
C10	L 6
C11	N 5
C12	N 6
C13	H11
C14	H11
C15	J11
C16	J12
C17	I17
C18	I17
C19	C10
C20	F 6
C21	I 5
C22	I 4
C23	J13
C24	C11
C25	M17
C26	K13
C27	L13
C28	A 9
C29	L13
C30	M18
C31	C18
C32	E 6
C33	E 7
C34	C13
C35	C18
C36	G18
C60	C 6
C61	C 7
C62	C17
D1	C 4
D2	B 4
D3	M 9
D4	D 9
D5	K 8
D6	J 3
D7	M 3
D8	O10
D9	I 9
D10	M10
D11	H10
D12	E10
D13	K 5
D14	N 5
D15	F 9
D16	J10
D17	C10
D18	I18
D19	B 8
D20	C13
D21	A 8
D22	A 8
D23	B13
D24	C 8
D32	C 8
D33	C17
D34	C 6
D35	A 5
DV1	B 3
DV2	A11
DV3	G13
DZ1	H 4
DZ2	F 4
IC2	N 9
IC3	K 9
IC4	G 9
IC5	D 9
IC6	J 3
IC7	M 3
IC8	I 9
IC9	J18
IC10	B15
J1	H 1
J1	G 1
J1	G 1
J1	F 1
J1	F 1
J1	E 1
J1	B 1
J1	B 1
J1	B 1
L1	I18
L2	J13
P1	A20
P1	C20
P1	C20
P1	B20
P1	B20
P1	B20
P1	A20
P2	F20
P2	F20
P2	E20
P2	E20
P2	E20
P2	D20
P2	D20
P3	J20
P3	J20
P3	I20
P3	I20
P3	I20
P3	H20
P3	H20
P3	G20
P3	G20
P4	M20
P4	L20
P4	L20
P4	K20
P4	K20
P4	N20
P4	N20
P4	M20
P4	M20
Q1	B11
Q2	A11
Q3	A11
Q4	A12
Q5	E18
Q7	A14
R4	B 3
R5	M 9
R6	M10
R7	H 9
R8	F 9
R9	F10
R11	N10
R12	L10
R13	G10
R14	E10
R15	K 4
R16	L 3
R17	L 4
R18	N 4
R20	O 9
R21	O 4
R22	O 3
R24	A13
R25	J10
R26	K 9
R27	G 2
R28	H 2
R29	E 2
R30	F 2
R31	B 9
R32	B10
R33	C10
R34	J13
R35	K13
R36	K13
R37	L18
R38	A10
R40	H15
R41	A12
R42	B11
R43	G17
R44	D18
R45	D17
R46	C18
R47	F13
R48	D18
R64	A14
R65	A15
R66	C 5
R67	C 5
S11	A 5
TP1	A 6
TP2	M 6
TP3	J 6
TP4	N11
TP5	K11
TP6	D11
TP7	D18
TP8	H15
TP9	I19
TP10	G11
TP11	I11
TP12	H16
TP13	G 5

POWER SUPPLY PANEL


R4
DV1
J1
D1
D34
D2
D35
C1
C61
TP1
C60
S11
D3
R11
D8
C3
IC8
D5
IC2
IC3
IC4
IC5
IC6
IC7
R20
D9
R25
D16
R67
R66
C2
C4
TP4
TP11
C15
C16
R12
D10
R5
R6
TP5
R26
C5
C6
R13
D11
D15
C13
TP10
C14
R7
D4
TP6
C7
R14
D12
C8
R8
R9
TP13
D6
C9
C10
R15
D13
R16
R17
D7
C11
R18
D14
C12
R21
R22
R24
TP2
TP3
TP9
TP7
P4
R27
R28
R29
R30
DZ1
F3
L1
C17
C18
D18
D33
IC9
R31
R32
D17
R33
C19
C24
C20
C21
C22
C23
C25
L2
D19
D20
D21
D22
D23
D24
D32
Q1
Q3
Q4
Q2
R38
C28
DZ2
C32
C33
C34
TP8
R40
TP12
R41
R42
DV2
R34
C26
C27
C29
R35
R36
R37
C30
C62
C31
C35
IC10
R43
DV3
R44
R47
R46
R45
R48
C36
Q7
Q5
P2
R65
P1
R64

MZ 3078

SERVO CIRCUIT DIAGRAM


SERVO - 1
LPF
DISC MOTOR CONTROL
MOTOR ON/OFF DETECTION
FOCUS SERVO CONTROL
DROP-OUT DETECTION
EMK SAMPLING
PRESET CONTROL
DAC
RADIAL POLARITY
TRACK JUMP COUNTER
TRAY MOTOR CONTROL
SR-FF
12/8CM DISC
MCESSEL
MOTOFF
VOFF
VSAMPLE
MERR
FROM WOBBLE PROCESSOR
CONN. 1603 TO CONN. 1503 ON ENCODER CIRCUIT
CONN. 1520 TO DISC MOTOR
CONN. 1600 TO CONN. 1002 ON WOSP CIRCUIT
CONN. 1601 TO CONN. P3 ON POWER SUPPLY CIRCUIT
CONN. 1602 TO CONN. 1001 ON WOSP CIRCUIT
CONN. 1650 TO TRAYMOTOR
(FROM SERVO I) (FROM 3815,7)
(FROM SERVO I) (FROM 3815,8)
MREADY (TO 7501,1)
TO SERVO uP
(FROM 3504) SRDAT
FROM SERVO uP SERVO II
(FROM 3509) SRCMC
(FROM 3516) FOCON
(FROM 7790-12)
(FROM 6870) SERVO I REN-A
(FROM 7500,17) RPDIV
(TO 7500,12) SERVO I RP
RPS (FROM 3517) (FROM 7500-36)
FOCOK (TO 7500,28)
DO (TO 6875) (TO 7871,10)
RJV6
RJV7
CAN
FEN
TRMOT
+10V
GND
-10V
+9V
-9V
+5V
-5V
FACT.-
FACT.+
LMOT-
LMOT+
7520 (A) MC34002
7520 (B) MC34002
7521 (A) LM358
7521 (B) LM358
7522 (A) 74HC4053
7522 (B) 74HC4053
7522 (C) 74HC4053
7540 74HC164
7541 (A) MC34002
7541 (B) MC34002
7542 BC264C
7560 (A) 74HC4053
7560 (B) 74HC4053
7560 (C) 74HC4053
7561 BC848
7562 BC858
7563 (A) LM393
7563 (B) LM393
7580 BC264C
7581 BC368
7582 BC369
7600 BC858
7601 (A) MC34002
7601 (B) MC34002
7602 BC848
7630 BC848
7640 BC264C
7641 BC264C
7642 (A) TCA0372
7642 (B) TCA0372
7680 (B) LM319
7681 BC848
7682 BC858
7683 BC848
7684 BC858
7685 BC848
7713 (B) 74HC04
7730 (A) 74HC4053
7730 (C) 74HC4053
7731 (A) 74C4520
7731 (B) 74HC4520
7870 (A) LM393
7870 (B) LM393
7871 (B) 74HC4053
7871 (C) 74HC4053
3104 118 00052R-A 9144
3104 118 00052S-A 9144

1520	B12
1520	B13
1520	B13
1600	J20
1600	I20
1600	H20
1600	F20
1600	C20
1600	C20
1600	C20
1600	A20
1601	H20
1601	F20
1601	D20
1601	D20
1601	C20
1601	B20
1601	B20
1601	B20
1601	B20
1602	N 7
1602	N 8
1603	B 1
1603	N17
1650	K20
1650	K20
1650	J20
2520	B 2
2521	A 2
2522	B 3
2523	C 3
2524	B 4
2525	B 5
2526	C 7
2527	B 6
2528	C 6
2540	F 2
2541	H 1
2542	D 4
2543	C13
2560	F 8
2561	E 9
2562	E10
2563	D 9
2564	E12
2565	C17
2566	B17
2567	C15
2568	D16
2580	C 9
2581	B 9
2582	C12
2583	B11
2584	D12
2600	M11
2601	L11
2602	J12
2603	G12
2604	L13
2605	J11
2606	K12
2620	F19
2630	K15
2640	H11
2641	I16
2642	I16
2645	L16
2650	K17
2651	J16
2652	L16
2653	L19
2654	L20
2660	G19
2661	G18
2662	H19
2663	H18
2664	B19
2665	B18
2666	C19
2667	C18
2669	D20
2671	E20
2680	L 4
2681	J 4
2682	I 6
2713	J 3
2730	N 3
2870	J 8
2871	J 7
2872	I 9
2873	J 9
2874	J 9
3502	F19
3520	B 1
3521	B 2
3522	C 2
3523	C 1
3524	A 3
3525	C 5
3526	C 5
3527	D 7
3528	B 3
3529	D 7
3531	C 7
3532	D 7
3533	C 5
3534	D 8
3535	C 8
3542	H 1
3543	F 4
3545	H 5
3546	G 6
3547	C 4
3550	C12
3551	D14
3552	C14
3560	C 3
3561	F 7
3562	F 8
3563	F 8
3564	D 9
3565	D 8
3566	F 7
3567	E10
3568	E10
3569	D12
3570	D12
3571	D13
3572	C15
3573	B16
3574	C16
3575	B17
3576	C17
3577	B15
3578	B15
3580	C 8
3581	A 9
3582	C10
3583	C11
3584	B11
3585	D11
3586	C12
3600	H12
3601	G13
3602	M10
3603	K10
3604	M10
3605	I13
3606	K13
3607	I11
3608	J11
3609	L11
3610	I11
3611	M12
3612	L13
3613	M12
3614	M13
3615	M13
3616	L15
3617	K12
3620	L17
3621	E19
3622	G19
3623	F19
3624	H19
3625	B19
3626	C19
3630	K14
3631	K14
3632	K15
3640	H12
3641	I12
3642	I12
3643	I14
3644	I15
3645	H15
3646	I16
3647	I16
3648	K15
3649	K16
3650	K18
3651	J18
3652	K19
3653	J16
3654	L18
3655	K18
3656	L15
3657	K20
3680	K 2
3681	J 3
3682	J 3
3683	K 3
3684	K 4
3685	J 4
3686	L 4
3687	J 4
3688	M 6
3689	J 5
3690	J 5
3691	I 5
3692	K 5
3693	L 5
3694	M 6
3695	M 5
3696	J 6
3697	M 4
3871	J 7
3872	J 7
3873	I 8
3874	J 9
3875	H10
3877	J 9
6530	C 7
6531	C 8
6540	D13
6561	F 8
6562	D11
6563	C18
6580	D10
6581	D10
6600	H11
6601	M11
6602	I13
6603	K13
6604	K11
6605	J11
6606	K11
6680	J 3
6681	L 3
6872	K 9
6873	K 9
6874	H 7
7520	B14
7521	D 4
7522	D 5
7522	D 6
7540	F 2
7541	E 8
7542	C13
7560	F 5
7560	D 2
7560	G16
7561	E11
7562	E12
7563	F15
7563	C17
7580	B10
7581	B11
7582	C11
7600	H13
7601	M11
7601	I12
7602	M14
7630	K14
7640	H13
7641	H16
7642	K16
7642	K19
7680	K 3
7681	J 4
7682	K 5
7683	N 6
7684	I 5
7685	N 4
7713	E17
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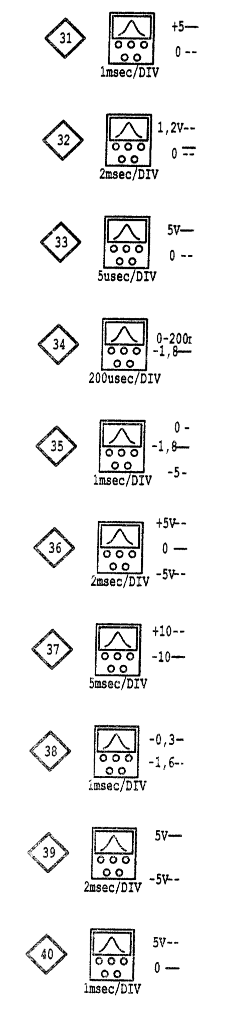
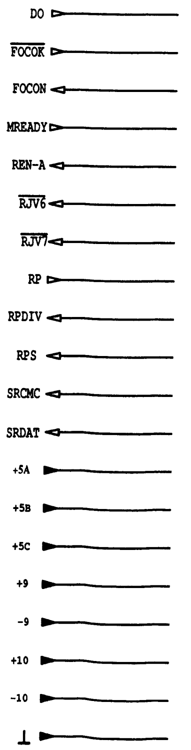
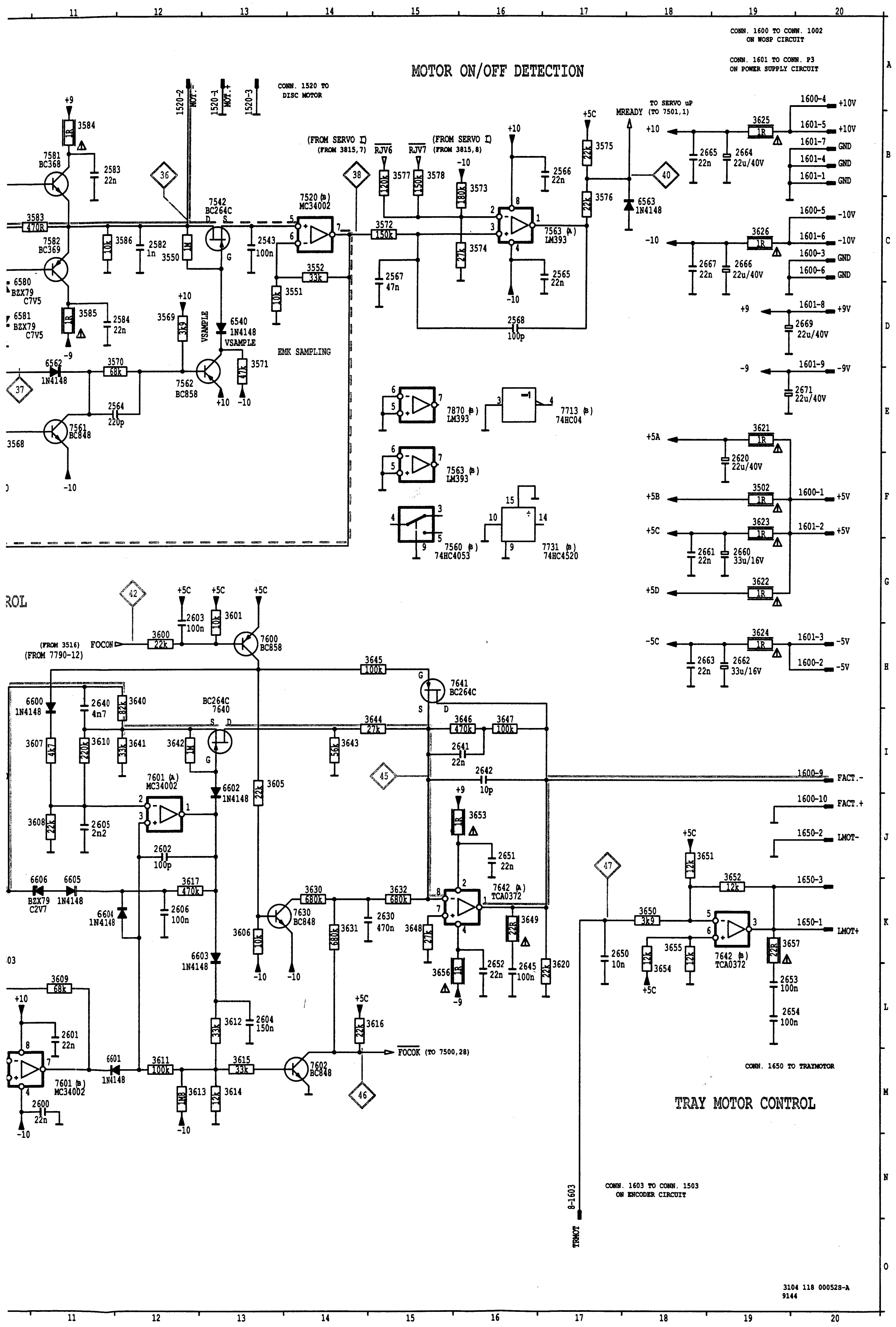
7730	L 4
7731	M 3
7731	G17
7870	I 9
7870	E15
7871	I 8
7871	K10


31
1msec/DIV
+5—
0 —
32
2msec/DIV
1,2V--
0 —
33
5usec/DIV
5V—
0 —
34
200usec/DIV
0-200r
-1,8—
35
1msec/DIV
0-
-1,8—
-5-
36
2msec/DIV
+5V--
0 —
-5V--
37
5msec/DIV
+10--
-10—
38
1msec/DIV
-0,3--
-1,6--
39
2msec/DIV
5V—
-5V--
40
1msec/DIV
5V--
0 —


DO
FOCOK
FOCON
MREADY
REN-A
RJV6
RJV7
RP
RPDIV
RPS
SRCMC
SRDAT
+5A
+5B
+5C
+9
-9
+10
-10
⊥


11
12
13
14
15
16
17
18
19
20
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
MOTOR ON/OFF DETECTION
CONN. 1600 TO CONN. 1002 ON WOSP CIRCUIT
CONN. 1601 TO CONN. P3 ON POWER SUPPLY CIRCUIT
CONN. 1520 TO DISC MOTOR
1520-2
1520-1 MOT.-
MOT.+
1520-3
TO SERVO uP MREADY (TO 7501,1)
(FROM SERVO I) (FROM 3815,7) RJV6
RJV7 (FROM SERVO I) (FROM 3815,8)
7520 MC34002
7542 BC264C
7563 LM393
7581 BC368
7582 BC369
7562 BC858
7561 BC858
6580 BZX79 C7V5
6581 BZX79 C7V5
6540 1N4148 VSAMPLE
6562 1N4148
6563 1N4148
VSAMPLE
EMK SAMPLING
7870 LM393
7713 74HC04
7563 LM393
7560 74HC4053
7731 74HC4520
1600-4 +10V
1601-5 +10V
1601-7 GND
1601-4 GND
1601-1 GND
1600-5 -10V
1601-6 -10V
1600-3 GND
1600-6 GND
1601-8 +9V
1601-9 -9V
1600-1 +5V
1601-2 +5V
1601-3 -5V
1600-2 -5V
+5A
+5B
+5C
+5D
-5C
ROL
(FROM 3516) (FROM 7790-12)
FOCON
7600 BC858
7641 BC264C
7640 BC264C
7601 MC34002
6600 1N4148
6602 1N4148
6603 1N4148
6604 1N4148
6601 1N4148
6605 1N4148
6606 BZX79 C2V7
7630 BC848
7602 BC848
7642 TCA0372
FOCOK (TO 7500,28)
1600-9 FACT.-
1600-10 FACT.+
1650-2 LMOT-
1650-3
1650-1 LMOT+
CONN. 1650 TO TRAYMOTOR
TRAY MOTOR CONTROL
CONN. 1603 TO CONN. 1503 ON ENCODER CIRCUIT
8-1603
TRMOT
3104 118 00052S-A
9144

1520	B12
1520	B13
1520	B13
1600	J20
1600	I20
1600	H20
1600	F20
1600	C20
1600	C20
1600	C20
1600	A20
1601	H20
1601	F20
1601	D20
1601	D20
1601	C20
1601	B20
1601	B20
1601	B20
1601	B20
1602	N 7
1602	N 8
1603	B 1
1603	N17
1650	K20
1650	K20
1650	J20
2520	B 2
2521	A 2
2522	B 3
2523	C 3
2524	B 4
2525	B 5
2526	C 7
2527	B 6
2528	C 6
2540	F 2
2541	H 1
2542	D 4
2543	C13
2560	F 8
2561	E 9
2562	E10
2563	D 9
2564	E12
2565	C17
2566	B17
2567	C15
2568	D16
2580	C 9
2581	B 9
2582	C12
2583	B11
2584	D12
2600	M11
2601	L11
2602	J12
2603	G12
2604	L13
2605	J11
2606	K12
2620	F19
2630	K15
2640	H11
2641	I16
2642	I16
2645	L16
2650	K17
2651	J16
2652	L16
2653	L19
2654	L20
2660	G19
2661	G18
2662	H19
2663	H18
2664	B19
2665	B18
2666	C19
2667	C18
2669	D20
2671	E20
2680	L 4
2681	J 4
2682	I 6
2713	J 3
2730	N 3
2870	J 8
2871	J 7
2872	I 9
2873	J 9
2874	J 9
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3520	B 1
3521	B 2
3522	C 2
3523	C 1
3524	A 3
3525	C 5
3526	C 5
3527	D 7
3528	B 3
3529	D 7
3531	C 7
3532	D 7
3533	C 5
3534	D 8
3535	C 8
3542	H 1
3543	F 4
3545	H 5
3546	G 6
3547	C 4
3550	C12
3551	D14
3552	C14
3560	C 3
3561	F 7
3562	F 8
3563	F 8
3564	D 9
3565	D 8
3566	F 7
3567	E10
3568	E10
3569	D12
3570	D12
3571	D13
3572	C15
3573	B16
3574	C16
3575	B17
3576	C17
3577	B15
3578	B15
3580	C 8
3581	A 9
3582	C10
3583	C11
3584	B11
3585	D11
3586	C12
3600	H12
3601	G13
3602	M10
3603	K10
3604	M10
3605	I13
3606	K13
3607	I11
3608	J11
3609	L11
3610	I11
3611	M12
3612	L13
3613	M12
3614	M13
3615	M13
3616	L15
3617	K12
3620	L17
3621	E19
3622	G19
3623	F19
3624	H19
3625	B19
3626	C19
3630	K14
3631	K14
3632	K15
3640	H12
3641	I12
3642	I12
3643	I14
3644	I15
3645	H15
3646	I16
3647	I16
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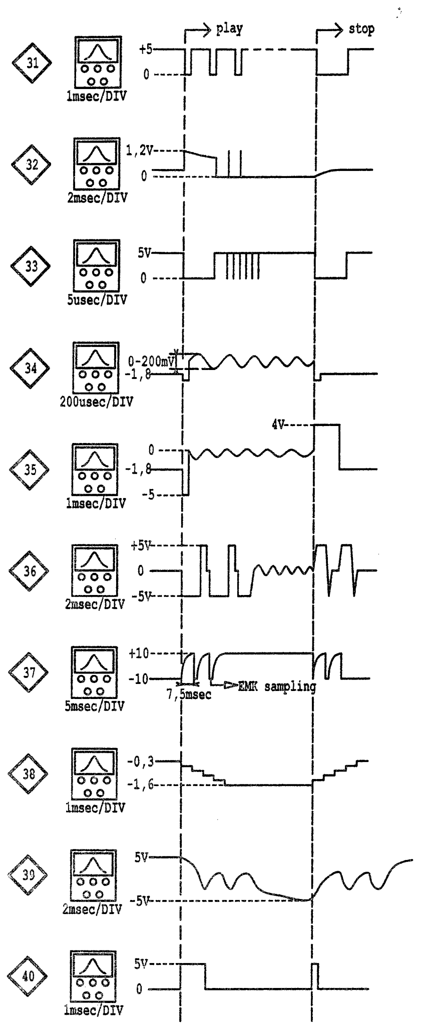
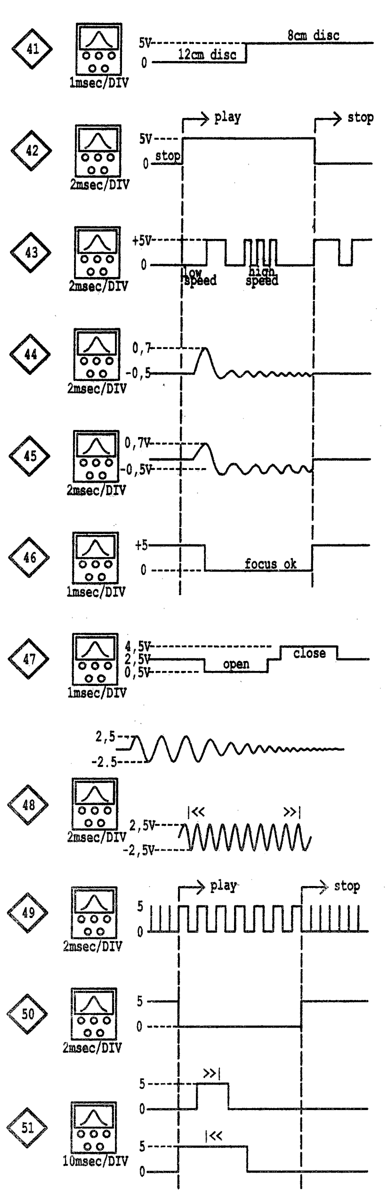
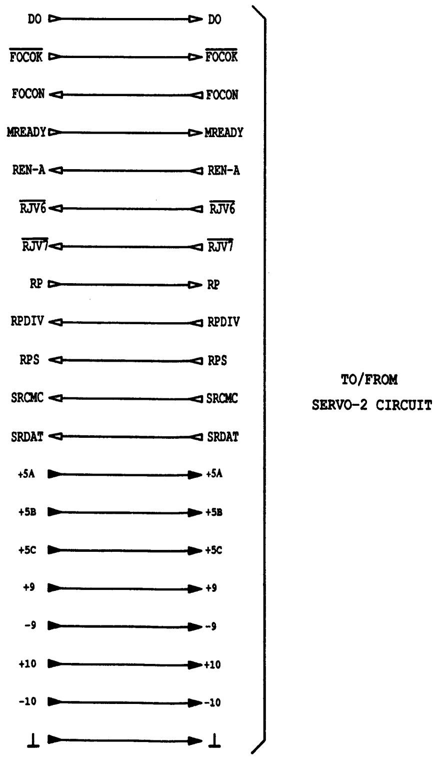
3651	J18
3652	K19
3653	J16
3654	L18
3655	K18
3656	L15
3657	K20
3680	K 2
3681	J 3
3682	J 3
3683	K 3
3684	K 4
3685	J 4
3686	L 4
3687	J 4
3688	M 6
3689	J 5
3690	J 5
3691	I 5
3692	K 5
3693	L 5
3694	M 6
3695	M 5
3696	J 6
3697	M 4
3871	J 7
3872	J 7
3873	I 8
3874	J 9
3875	H10
3877	J 9
6530	C 7
6531	C 8
6540	D13
6561	F 8
6562	D11
6563	C18
6580	D10
6581	D10
6600	H11
6601	M11
6602	I13
6603	K13
6604	K11
6605	J11
6606	K11
6680	J 3
6681	L 3
6872	K 9
6873	K 9
6874	H 7
7520	B14
7521	D 4
7522	D 5
7522	D 6
7540	F 2
7541	E 8
7542	C13
7560	F 5
7560	D 2
7560	G16
7561	E11
7562	E12
7563	F15
7563	C17
7580	B10
7581	B11
7582	C11
7600	H13
7601	M11
7601	I12
7602	M14
7630	K14
7640	H13
7641	H16
7642	K16
7642	K19
7680	K 3
7681	J 4
7682	K 5
7683	N 6
7684	I 5
7685	N 4
7713	E17
7730	N 2
7730	L 4
7731	M 3
7731	G17
7870	I 9
7870	E15
7871	I 8
7871	K10






DO
FOCOK
FOCON
MREADY
REN-A
RJV6
RJV7
RP
RPDIV
RPS
SRCMC
SRDAT
+5A
+5B
+5C
+9
-9
+10
-10
⊥
TO/FROM SERVO-2 CIRCUIT

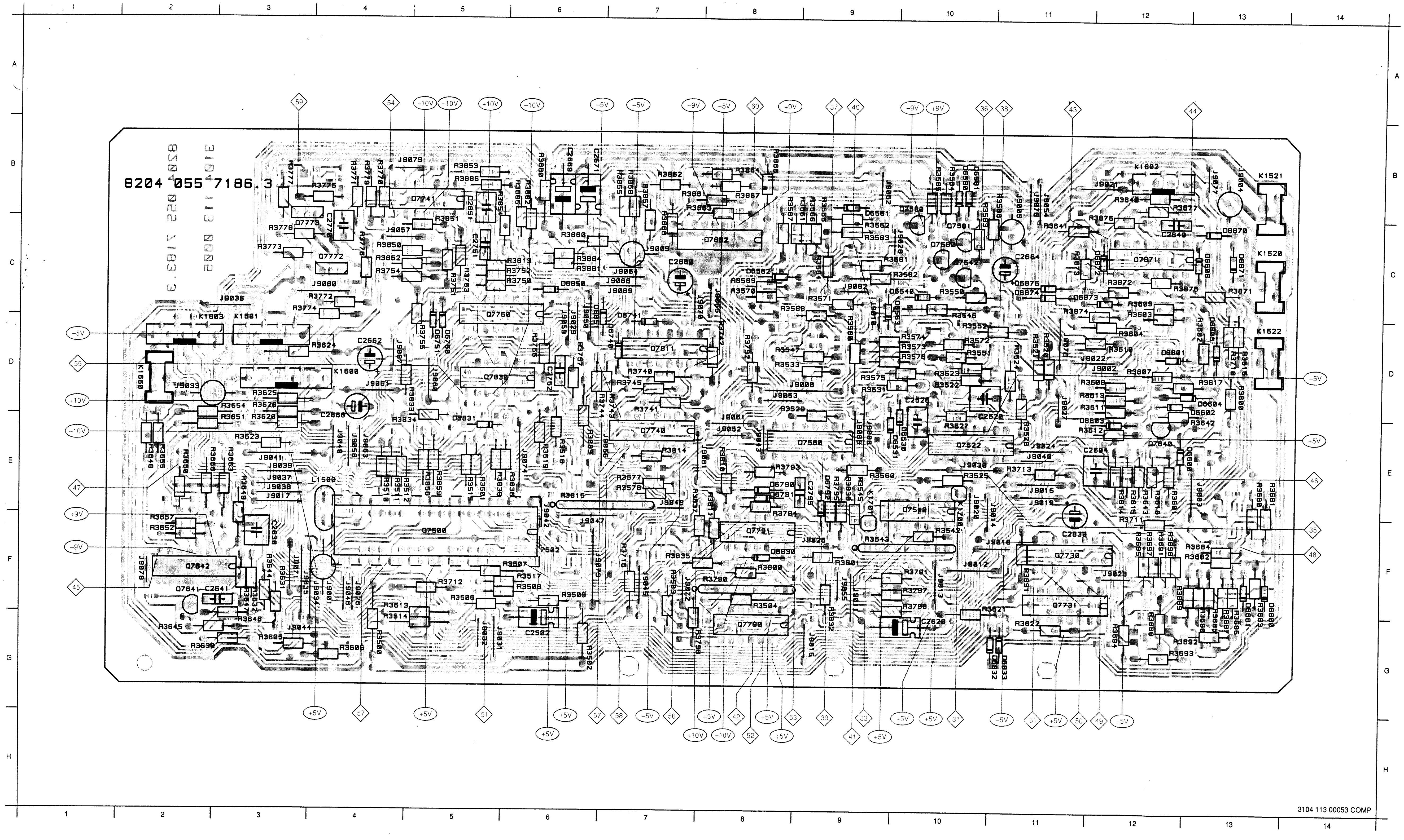
SERVO-1

CAN	- Normalized CA Signal
DO	- Drop Out
FACT+ -	- Focus Actuator
FEN	- Focus Error Normalized
FOCOK	- In Focus Signal
FOCON	- Focus On
GND	- Ground
LMOT+ -	- Tray Motor
MERR	- Motor Control Error Signal
MOT+ -	- Disc Motor
MREADY	- Turntable Motor Ready
REN-A	- Radial Error Normalized A
RJV6-7	- Radial Jump Voltage
RP	- Radial Polarity
RPDIV	- Radial Polarity Divider
RPS	- Radial Polarity Select
SRCMC	- Shift Register Clock Motor Control
SRDAT	- Shift Register Data
TRMOT	- Tray Motor Control

SERVO PANEL COMPONENT SIDE

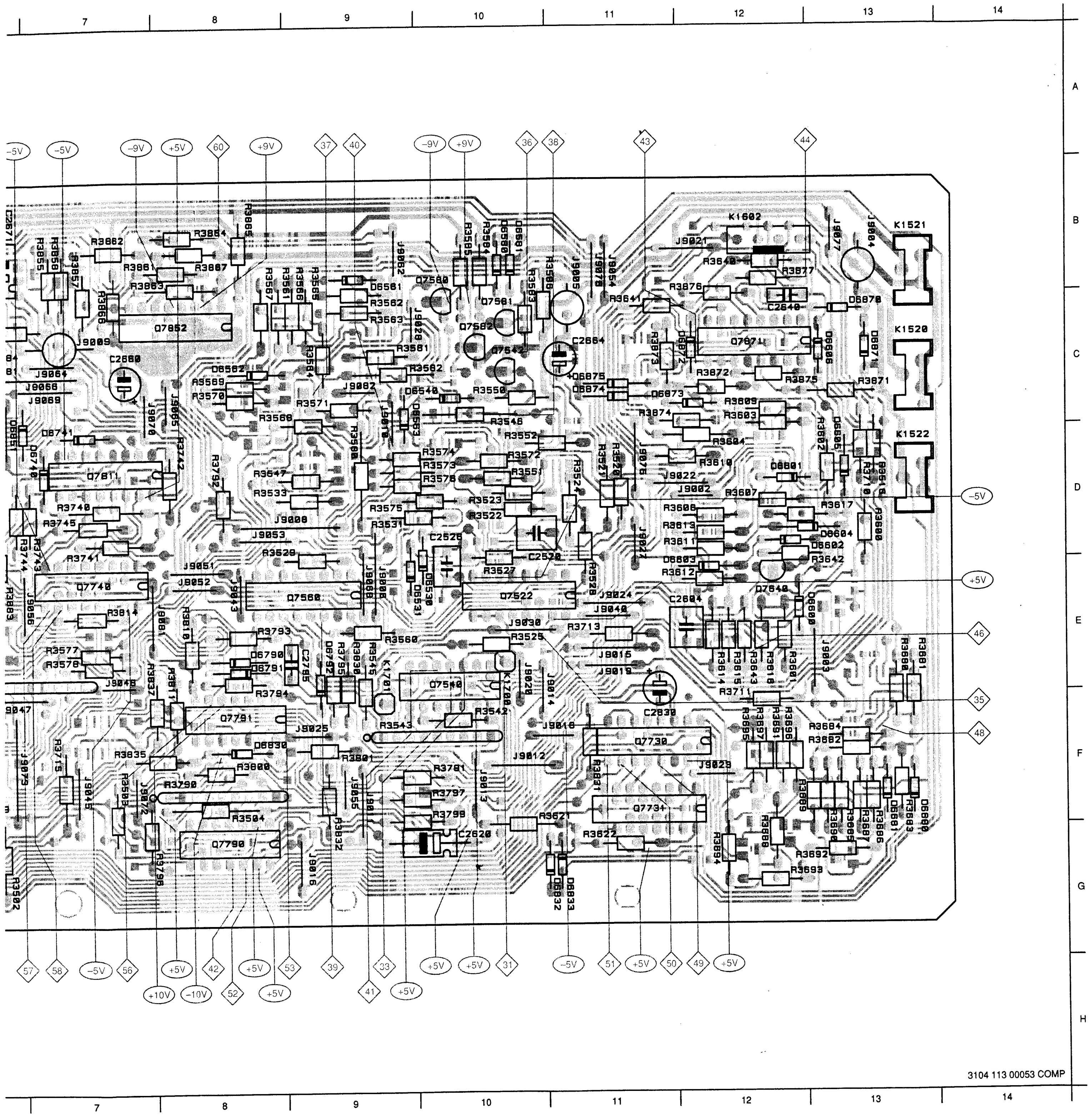
15

15


8204 055 7186.3
1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H
-5V
+10V
-10V
+9V
-9V
+5V
3104 113 00053 COMP

3104 113 00053 COMP

C2502	G6
C2520	E10
C2526	D10
C2604	E12
C2620	G10
C2630	F3
C2640	C12
C2641	F3
C2660	C7
C2662	D4
C2664	C11
C2666	E4
C2669	B6
C2671	B6
C2751	C5
C2752	D6
C2770	C4
C2795	E9
C2830	F11
C2851	B5
D6530	E10
D6531	E9
D6540	C10
D6561	B9
D6562	C8
D6563	C9
D6580	B10
D6581	B10
D6600	E13
D6601	D12
D6602	D13
D6603	E12
D6604	D13
D6605	D13
D6606	C13
D6680	F13
D6681	F13
D6740	D7
D6741	D7
D6750	D5
D6751	D5
D6790	E8
D6791	E8
D6792	E9
D6830	F8
D6831	E5
D6832	G11
D6833	G11
D6850	C6
D6851	D6
D6870	C13
D6871	C13
D6872	C12
D6873	C11
D6874	C11
D6875	C11
J9001	F4
J9002	D12
J9003	E13
J9004	B13
J9005	B11
J9006	E9
J9009	C7
J9010	C9
J9011	F9
J9012	F10
J9013	F10
J9014	F11
J9015	E11
J9016	G9



3104 113 00053 COMP

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C2526	D10	J9019	E11	K1522	D13	R3562	C9	R3652	F2	R3810	E8
C2604	E12	J9020	E10	K1600	D4	R3563	C9	R3653	E3	R3811	E8
C2620	G10	J9021	B12	K1601	D3	R3564	C9	R3654	D3	R3813	C6
C2630	F3	J9022	D11	K1602	B12	R3565	B9	R3655	E2	R3814	E7
C2640	C12	J9023	F12	K1603	D2	R3566	B9	R3657	F2	R3815	E6
C2641	F3	J9024	E11	K1650	D2	R3567	B8	R3658	E2	R3830	E9
C2660	C7	J9025	F9	K1700	E10	R3568	C8	R3669	F12	R3831	F11
C2662	D4	J9026	F4	K1701	E9	R3569	C8	R3681	E13	R3832	G9
C2664	C11	J9027	D11	L1500	E4	R3570	C8	R3682	F13	R3833	D5
C2666	E4	J9028	C10	Q7500	F5	R3571	C9	R3683	F13	R3834	E5
C2669	B6	J9029	D6	Q7522	E10	R3572	D10	R3684	F13	R3835	F7
C2671	B6	J9030	E10	Q7540	E10	R3573	D10	R3685	G13	R3836	E6
C2751	C5	J9031	G5	Q7542	C10	R3574	D10	R3686	G13	R3837	E7
C2752	D6	J9032	G5	Q7560	E9	R3575	D9	R3687	G13	R3838	E5
C2770	C4	J9033	D2	Q7580	B10	R3576	D10	R3688	G12	R3851	C5
C2795	E9	J9034	F4	Q7581	C10	R3577	E7	R3690	G13	R3852	C4
C2830	F11	J9035	F3	Q7582	C10	R3578	E7	R3691	F12	R3853	B5
C2851	B5	J9036	C3	Q7640	E12	R3580	D9	R3692	G13	R3854	B5
D6530	E10	J9037	E3	Q7641	F2	R3581	C9	R3693	G12	R3855	B7
D6531	E9	J9038	E3	Q7642	F2	R3581	B9	R3694	G12	R3856	E5
D6540	C10	J9039	E3	Q7730	F11	R3582	C10	R3695	F12	R3857	B7
D6561	B9	J9040	E11	Q7731	F11	R3583	C10	R3696	F12	R3858	B7
D6562	C8	J9041	E3	Q7740	E7	R3584	B10	R3697	F12	R3859	E5
D6563	C9	J9042	F6	Q7741	B5	R3585	B10	R3710	D13	R3860	C6
D6580	B10	J9043	E8	Q7750	D5	R3586	B11	R3711	F12	R3861	B7
D6581	B10	J9044	G3	Q7772	C4	R3600	E13	R3712	F5	R3862	B7
D6600	E13	J9045	F7	Q7773	C3	R3600	D13	R3713	E11	R3863	B8
D6601	D12	J9046	F4	Q7790	G8	R3600	D12	R3715	F7	R3864	B8
D6602	D13	J9047	F6	Q7791	F8	R3601	E12	R3740	D7	R3865	B8
D6603	E12	J9048	E7	Q7811	D7	R3602	D13	R3741	D7	R3866	C7
D6604	D13	J9049	E4	Q7830	D5	R3603	C12	R3742	D8	R3867	B8
D6605	D13	J9050	D6	Q7852	C8	R3604	D12	R3743	D7	R3871	C13
D6606	C13	J9051	E8	Q7871	C12	R3605	G3	R3744	D6	R3872	C12
D6680	F13	J9052	E8	R2552	D10	R3606	G4	R3745	D7	R3873	C11
D6681	F13	J9053	D8	R3050	C4	R3607	D12	R3750	C6	R3874	C11
D6740	D7	J9054	B11	R3500	G4	R3609	C12	R3751	C5	R3875	C12
D6741	D7	J9055	F9	R3501	E5	R3610	D12	R3752	C6	R3876	B12
D6750	D5	J9056	E7	R3502	G6	R3611	D12	R3753	C5	R3877	B12
D6751	D5	J9057	C4	R3503	F7	R3612	E12	R3754	C4	R3880	B6
D6790	E8	J9058	E4	R3504	F8	R3613	D12	R3755	D5	R3881	C6
D6791	E8	J9059	D6	R3506	F5	R3614	E12	R3756	D6	R3882	B6
D6792	E9	J9060	D5	R3507	F6	R3615	E12	R3757	D6	R3883	E6
D6830	F8	J9061	D4	R3508	F6	R3616	E12	R3770	B4	R3884	C6
D6831	E5	J9062	B9	R3509	F6	R3617	D13	R3771	B4	R3885	B6
D6832	G11	J9063	E4	R3510	E4	R3620	E3	R3772	C4	R3886	B5
D6833	G11	J9064	C7	R3511	E4	R3621	G10	R3773	C3		
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D6851	D6	J9066	C7	R3513	G4	R3623	E3	R3775	B4		
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D6874	C11	J9070	B4	R3518	E6	R3631	F3	R3790	F8		
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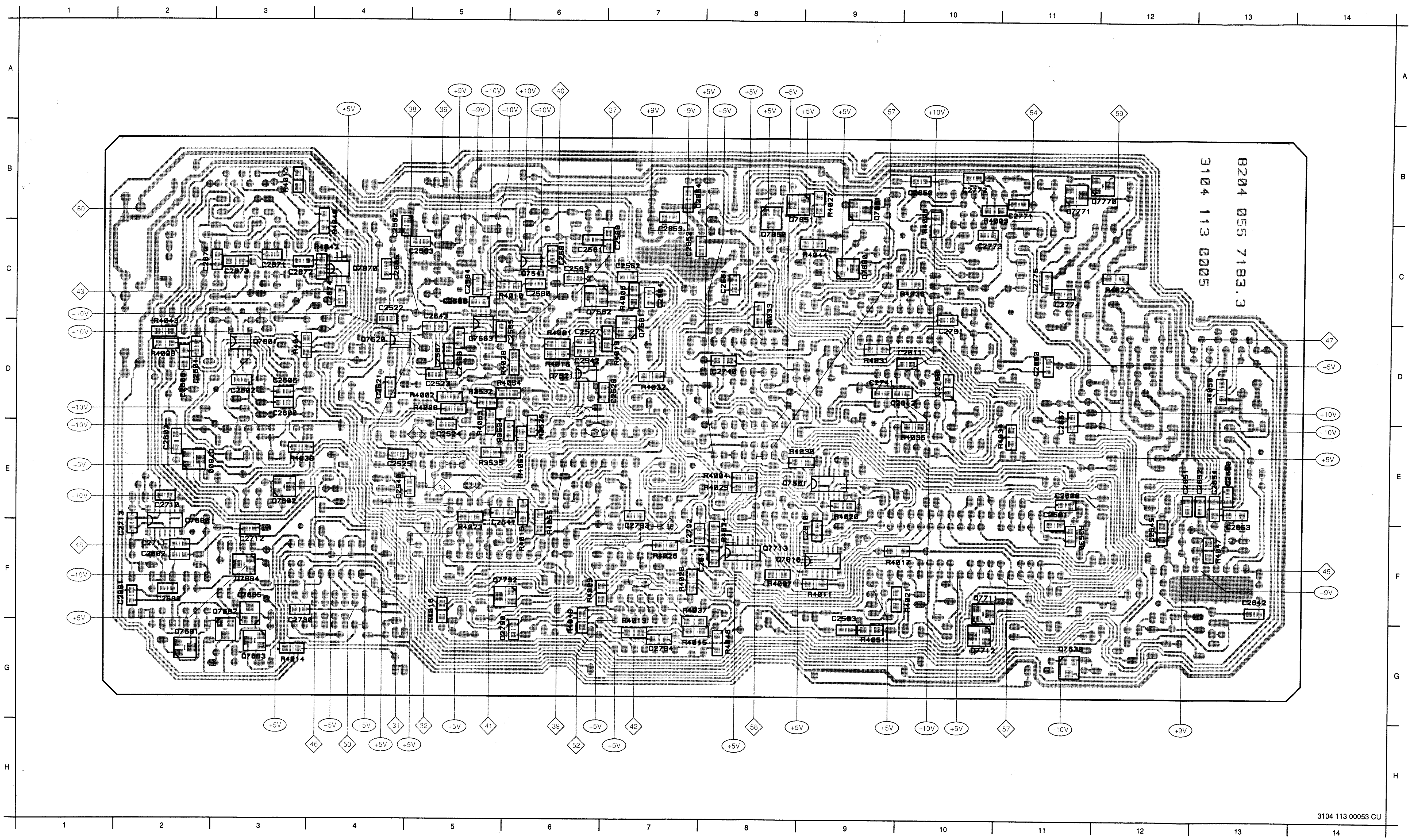
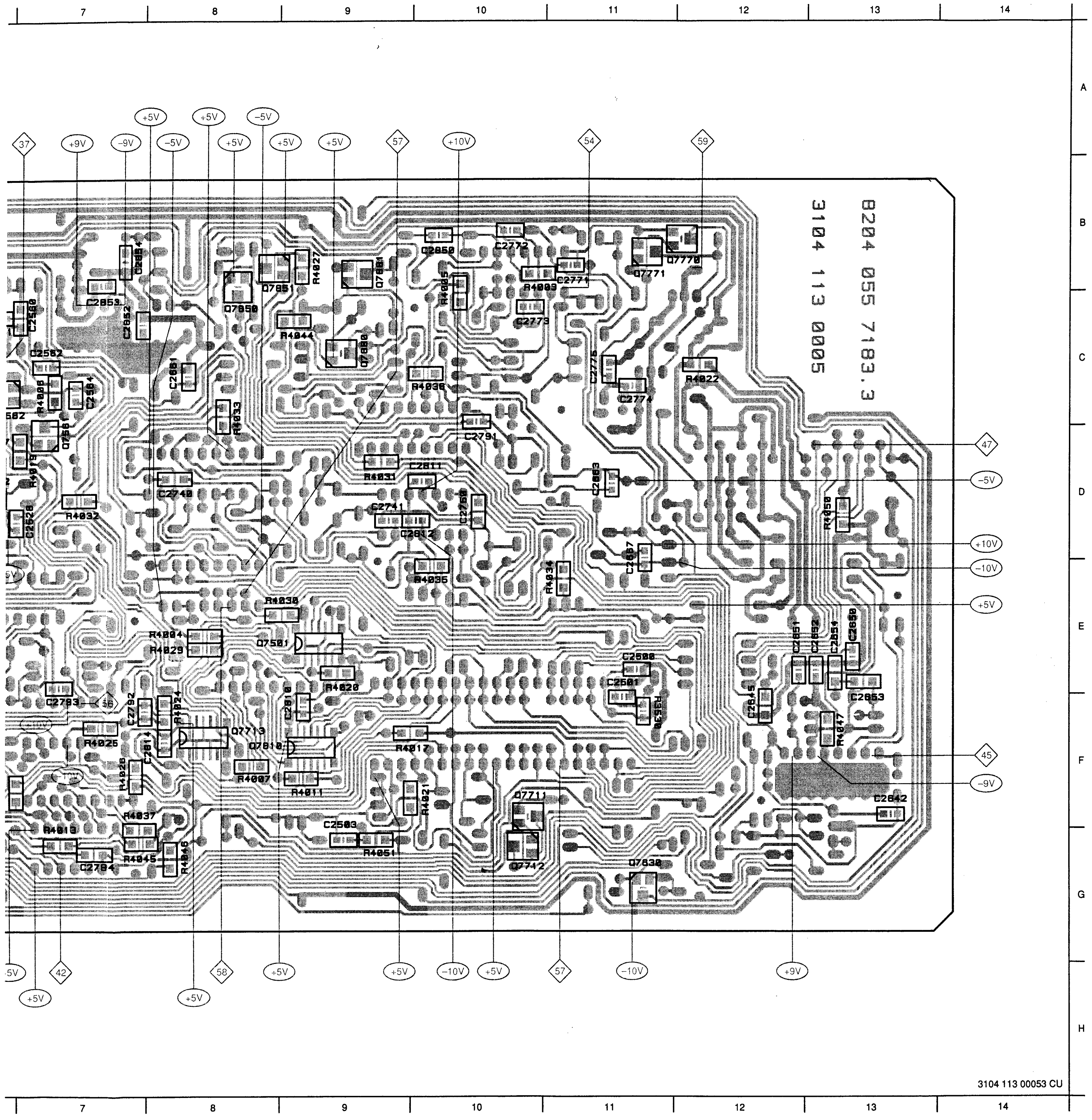
J9001	F4	J9072	F7	R3520	D11	R3640	B12	R3792	D8		
J9002	D12	J9073	F6	R3521	D11	R3641	C11	R3793	E8		
J9003	E13	J9074	E6	R3522	D10	R3642	E13	R3794	F8		
J9004	B13	J9075	D11	R3523	D10	R3643	E12	R3795	E9		
J9005	B11	J9076	B11	R3524	D11	R3644	F3	R3796	G8		
J9006	E9	J9077	B13	R3525	E10	R3645	G2	R3797	F10		
J9009	C7	J9078	F2	R3527	E10	R3646	G3	R3799	F10		
J9010	C9	J9080	C4	R3528	E11	R3647	F3				
J9011	F9	J9081	E8	R3529	D8	R3648	E2				
J9012	F10	J9082	C9	R3531	D9	R3649	E3				
J9013	F10			R3533	D8						
J9014	F11			R3542	F10						
J9015	E11			R3543	F9						
J9016	G9			R3545	E9						
				R3546	C10						
				R3547	D8						
				R3550	C10						

SERVO PANEL SOLDER SIDE



3104 113 00053 CU

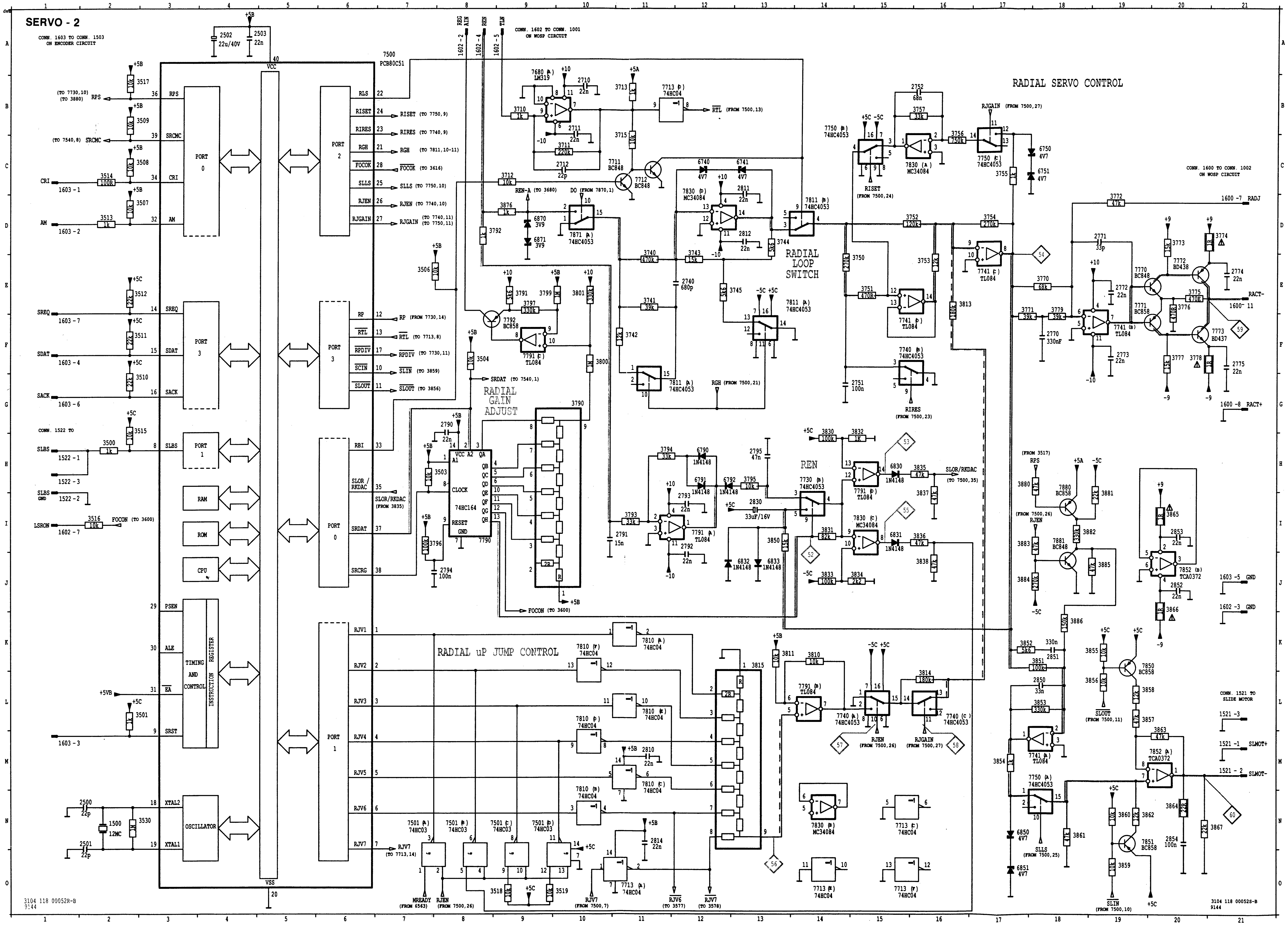
C2500	E11
C2501	E11
C2503	G9
C2521	D4
C2522	C4
C2523	D5
C2524	E5
C2525	E4
C2527	D6
C2528	D7
C2540	E4
C2541	F5
C2542	D6
C2543	C5
C2560	C7
C2561	C6
C2562	C7
C2563	C6
C2564	C7
C2565	D6
C2566	C5
C2567	D5
C2568	D5
C2581	C6
C2582	C4
C2583	C5
C2584	C5
C2600	D3
C2601	D2
C2602	D3
C2603	E2
C2605	D3
C2606	D2
C2642	F13
C2645	F12
C2650	E13
C2651	E12
C2652	E13
C2653	F13
C2654	E13
C2661	C8
C2663	D11
C2665	C4
C2667	E11
C2680	F2
C2681	F2
C2682	F2
C2710	E2
C2711	F2
C2712	F3
C2713	F2
C2730	G3
C2740	D8
C2741	D9
C2750	D10
C2771	B11
C2772	B10
C2773	C10
C2774	C11
C2775	C11
C2790	G6
C2791	D10
C2793	F7
C2794	G7
C2810	F9
C2811	D10
C2812	D10
C2814	F8



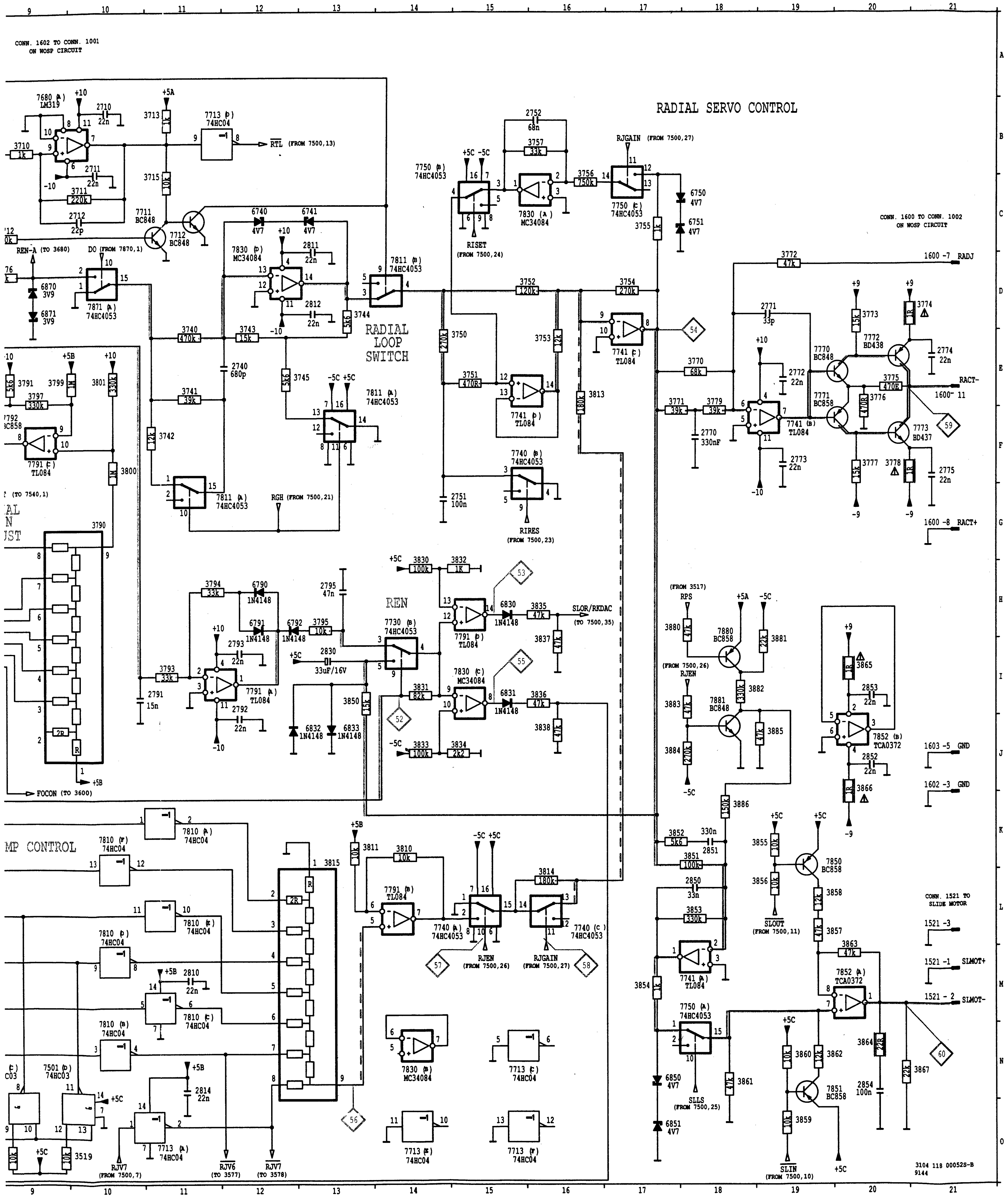
C2500	E11	C2850	B10	R4027	B9
C2501	E11	C2852	C7	R4028	D6
C2503	G9	C2853	C7	R4029	E8
C2521	D4	C2854	B7	R4030	E9
C2522	C4	C2870	C3	R4031	D9
C2523	D5	C2871	C3	R4032	D7
C2524	E5	C2872	C3	R4033	C8
C2525	E4	C2873	C3	R4034	E11
C2527	D6	C2874	C4	R4035	E10
C2528	D7	C7292	F7	R4036	C10
C2540	E4	Q7501	E9	R4037	F7
C2541	F5	Q7520	D4	R4038	D2
C2542	D6	Q7521	D6	R4039	E3
C2543	C5	Q7541	C6	R4040	C4
C2560	C7	Q7561	D7	R4041	D3
C2561	C6	Q7562	C6	R4042	C4
C2562	C7	Q7563	D5	R4043	D2
C2563	C6	Q7600	E2	R4044	C9
C2564	C7	Q7601	G2	R4045	G7
C2565	D6	Q7601	D3	R4046	G8
C2566	C5	Q7602	E3	R4047	F13
C2567	D5	Q7630	G11	R4049	G6
C2568	D5	Q7680	F2	R4050	D13
C2581	C6	Q7682	F3	R4051	G9
C2582	C4	Q7683	G3	R4052	E6
C2583	C5	Q7684	F3	R4053	E5
C2584	C5	Q7685	F3	R4054	D6
C2600	D3	Q7711	F10	R4055	F6
C2601	D2	Q7712	G10		
C2602	D3	Q7713	F8		
C2603	E2	Q7770	B12		
C2605	D3	Q7771	B11		
C2606	D2	Q7792	F6		
C2642	F13	Q7810	F8		
C2645	F12	Q7850	C8		
C2650	E13	Q7851	B8		
C2651	E12	Q7870	C4		
C2652	E13	Q7880	C9		
C2653	F13	Q7881	B9		
C2654	E13	R3526	E6		
C2661	C8	R3530	F11		
C2663	D11	R3532	D5		
C2665	C4	R3534	E5		
C2667	E11	R3535	E5		
C2680	F2	R4001	D6		
C2681	F2	R4002	D5		
C2682	F2	R4003	B10		
C2710	E2	R4004	E8		
C2711	F2	R4005	C10		
C2712	F3	R4006	C7		
C2713	F2	R4007	F8		
C2730	G3	R4008	D5		
C2740	D8	R4009	F6		
C2741	D9	R4010	C6		
C2750	D10	R4011	F9		
C2771	B11	R4012	B3		
C2772	B10	R4013	G7		
C2773	C10	R4014	G3		
C2774	C11	R4015	F6		
C2775	C11	R4016	D6		
C2790	G6	R4017	F9		
C2791	D10	R4018	F5		
C2793	F7	R4019	D7		
C2794	G7	R4020	E9		
C2810	F9	R4021	F10		
C2811	D10	R4022	C12		
C2812	D10	R4023	F5		
C2814	F8	R4024	F8		
		R4025	F7		
		R4026	F7		

3104 113 00053 CU

SERVO CIRCUIT DIAGRAM


SERVO - 2
CONN. 1603 TO CONN. 1503 ON ENCODER CIRCUIT
CONN. 1602 TO CONN. 1001 ON WOSP CIRCUIT
CONN. 1600 TO CONN. 1002 ON WOSP CIRCUIT
CONN. 1522 TO
CONN. 1521 TO SLIDE MOTOR
7500 PCB80C51
PORT 0
PORT 1
PORT 2
PORT 3
RAM
ROM
CPU
TIMING AND CONTROL
INSTRUCTION REGISTER
OSCILLATOR
VCC
VSS
RPS
SRCHC
CRI
AM
SREQ
SDAT
SACK
SLBS
LSRON
FOCON
PSEN
ALE
EA
SRST
XTAL1
XTAL2
RLS
RISET
RIRES
RGH
FOCOK
SLLS
RJEN
RJGAIN
RP
RTL
RPDIV
SCIN
SLOUT
SLIN
RBI
SLOR / RKDAC
SRDAT
SRCRG
RJV1
RJV2
RJV3
RJV4
RJV5
RJV6
RJV7
REG AIN
REN
TLN
RADIAL SERVO CONTROL
RADIAL LOOP SWITCH
RADIAL GAIN ADJUST
REN
RADIAL uP JUMP CONTROL
74HC164
74HC4053
74HC04
74HC03
TL084
MC34084
LM319
TCA0372
BC848
BC858
BD438
BD437
RADJ
RACT-
RACT+
SLMOT+
SLMOT-
MREADY
1500 12MC
3104 118 00052R-B 9144
3104 118 00052S-B 9144

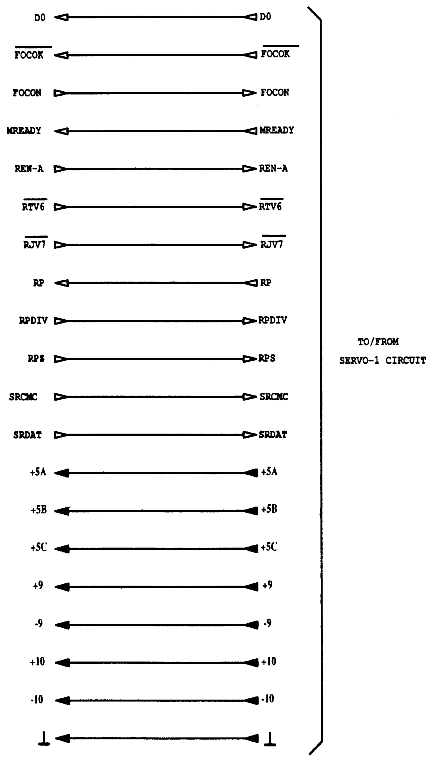
1500	N 2	6832
1521	M21	6833
1521	M21	6850
1521	L21	6851
1522	I 1	6870
1522	H 1	6871
1522	H 1	7500
1600	G21	7501
1600	D21	7501
1600	E21	7501
1602	A 8	7501
1602	A 8	7680
1602	A 9	7711
1602	J21	7712
1602	I 1	7713
1603	J21	7713
1603	M 1	7713
1603	G 1	7713
1603	F 1	7713
1603	F 1	7730
1603	D 1	7740
1603	C 1	7740
2500	N 2	7740
2501	N 2	7741
2502	A 4	7741
2503	A 5	7741
2710	B10	7741
2711	B10	7750
2712	C10	7750
2740	E12	7750
2751	G15	7770
2752	B16	7771
2770	F18	7772
2771	D19	7773
2772	E19	7790
2773	F19	7791
2774	E21	7791
2775	F21	7791
2790	G 8	7791
2791	I11	7792
2792	I12	7810
2793	I12	7810
2794	J 8	7810
2795	H13	7810
2810	M11	7810
2811	C13	7810
2812	D13	7811
2814	N11	7811
2830	I13	7811
2850	L18	7830
2851	K18	7830
2852	J20	7830
2853	I20	7830
2854	N20	7850
3500	H 2	7851
3501	L 3	7852
3503	H 8	7852
3504	F 8	7871
3506	E 7	7880
3507	D 3	7881
3508	C 3	
3509	B 3	
3510	G 3	
3511	F 3	
3512	E 3	
3513	D 2	
3514	C 2	
3515	G 3	
3516	I 2	
3517	B 3	
3518	O 9	
3519	O10	
3530	N 3	
3710	B 9	
3711	C10	
3712	C 9	
3713	B11	
3715	C11	
3740	E11	
3741	E11	
3742	F11	
3743	E12	
3744	D13	
3745	E13	
3750	E15	
3751	E15	
3752	D16	
3753	E16	
3754	D17	
3755	C17	
3756	C16	
3757	B16	
3770	E18	
3771	E17	
3772	D19	
3773	D20	
3774	D21	
3775	E20	
3776	E20	
3777	F20	
3778	F20	
3779	E18	
3790	G10	
3791	E 9	
3792	D 9	
3793	I11	
3794	H11	
3795	H13	
3796	I 8	
3797	E 9	
3799	E 9	
3800	F10	
3801	E10	
3810	K14	
3811	K13	
3813	E16	
3814	L16	
3815	K13	
3830	H14	
3831	I14	
3832	H15	
3833	J14	
3834	J15	
3835	H16	
3836	I16	
3837	I16	
3838	J16	
3850	I13	
3851	K18	
3852	K17	
3853	L18	
3854	M17	
3855	K19	
3856	L19	
3857	L20	
3858	L20	
3859	O19	
3860	N19	
3861	N18	
3862	N20	
3863	M20	
3864	N20	
3865	I20	
3866	J20	
3867	N21	
3876	D 9	
3880	H17	
3881	I19	
3882	I19	
3883	I17	
3884	J17	
3885	J19	
3886	K18	
6740	C12	
6741	C13	
6750	C18	
6751	C18	
6790	H12	
6791	H12	
6792	H12	
6830	H15	
6831	I15	

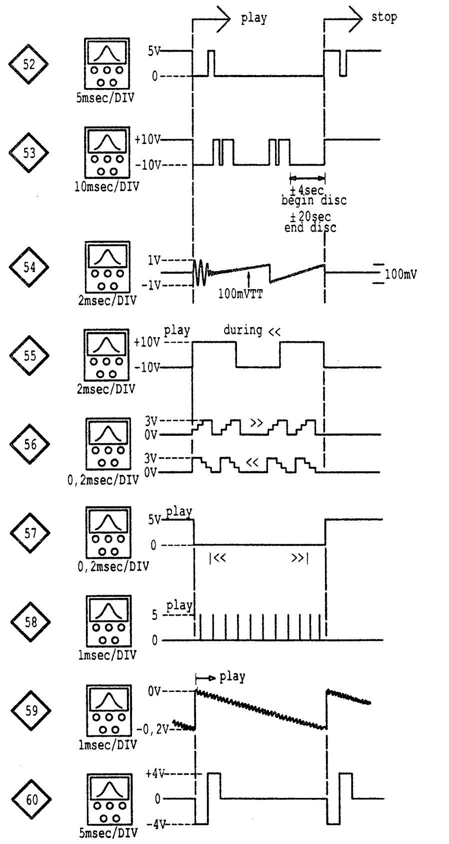

RADIAL SERVO CONTROL
RADIAL LOOP SWITCH
REN
MP CONTROL
CONN. 1602 TO CONN. 1001 ON WOSP CIRCUIT
CONN. 1600 TO CONN. 1002 ON WOSP CIRCUIT
CONN. 1521 TO SLIDE MOTOR
RTL (FROM 7500,13)
REN-A (TO 3680)
DO (FROM 7870,1)
RJGAIN (FROM 7500,27)
RISET (FROM 7500,24)
RGH (FROM 7500,21)
RIRES (FROM 7500,23)
SLOR/RKDAC (TO 7500,35)
RPS (FROM 3517)
RJEN (FROM 7500,26)
SLOUT (FROM 7500,11)
SLLS (FROM 7500,25)
SLIN (FROM 7500,10)
RJV7 (FROM 7500,7)
RJV6 (TO 3577)
RJV7 (TO 3578)
FOCON (TO 3600)
1600 -7 RADJ
RACT-
1600- 11
1600 -8 RACT+
1603 -5 GND
1602 -3 GND
1521 -3
1521 -1 SLMOT+
1521 - 2 SLMOT-
7750 (B) 74HC4053
7830 (A) MC34084
7750 (C) 74HC4053
7811 (B) 74HC4053
7811 (A) 74HC4053
7741 (C) TL084
7741 (D) TL084
7740 (B) 74HC4053
7741 (B) TL084
7770 BC848
7771 BC858
7772 BD438
7773 BD437
7730 (B) 74HC4053
7791 (D) TL084
7791 (A) TL084
7830 (C) MC34084
7880 BC858
7881 BC848
7852 (B) TCA0372
7852 (A) TCA0372
7850 BC858
7851 BC858
7741 (A) TL084
7750 (A) 74HC4053
7740 (A) 74HC4053
7740 (C) 74HC4053
7791 (B) TL084
7830 (B) MC34084
7713 (C) 74HC04
7713 (E) 74HC04
7713 (F) 74HC04
7713 (D) 74HC04
7810 (F) 74HC04
7810 (A) 74HC04
7810 (D) 74HC04
7810 (E) 74HC04
7810 (C) 74HC04
7810 (B) 74HC04
7713 (A) 74HC04
7501 (D) 74HC03
7680 (A) LM319
7711 BC848
7712 BC848
7830 (D) MC34084
7871 (A) 74HC4053
7791 (C) TL084
7792 BC858
3104 118 00052S-B
9144

1500	N 2
1521	M21
1521	M21
1521	L21
1522	I 1
1522	H 1
1522	H 1
1600	G21
1600	D21
1600	E21
1602	A 8
1602	A 8
1602	A 9
1602	J21
1602	I 1
1603	J21
1603	M 1
1603	G 1
1603	F 1
1603	F 1
1603	D 1
1603	C 1
2500	N 2
2501	N 2
2502	A 4
2503	A 5
2710	B10
2711	B10
2712	C10
2740	E12
2751	G15
2752	B16
2770	F18
2771	D19
2772	E19
2773	F19
2774	E21
2775	F21
2790	G 8
2791	I11
2792	I12
2793	I12
2794	J 8
2795	H13
2810	M11
2811	C13
2812	D13
2814	N11
2830	I13
2850	L18
2851	K18
2852	J20
2853	I20
2854	N20
3500	H 2
3501	L 3
3503	H 8
3504	F 8
3506	E 7
3507	D 3
3508	C 3
3509	B 3
3510	G 3
3511	F 3
3512	E 3
3513	D 2
3514	C 2
3515	G 3
3516	I 2
3517	B 3
3518	O 9
3519	O10
3530	N 3
3710	B 9
3711	C10
3712	C 9
3713	B11
3715	C11
3740	E11
3741	E11
3742	F11
3743	E12
3744	D13
3745	E13
3750	E15
3751	E15
3752	D16
3753	E16
3754	D17
3755	C17
3756	C16
3757	B16
3770	E18
3771	E17
3772	D19
3773	D20
3774	D21
3775	E20
3776	E20
3777	F20
3778	F20
3779	E18
3790	G10
3791	E 9
3792	D 9
3793	I11
3794	H11
3795	H13
3796	I 8
3797	E 9
3799	E 9
3800	F10
3801	E10
3810	K14
3811	K13
3813	E16
3814	L16
3815	K13
3830	H14
3831	I14
3832	H15
3833	J14
3834	J15
3835	H16
3836	I16
3837	I16
3838	J16
3850	I13
3851	K18
3852	K17
3853	L18
3854	M17
3855	K19
3856	L19
3857	L20
3858	L20
3859	O19
3860	N19
3861	N18
3862	N20
3863	M20
3864	N20
3865	I20
3866	J20
3867	N21
3876	D 9
3880	H17
3881	I19
3882	I19
3883	I17
3884	J17
3885	J19
3886	K18
6740	C12
6741	C13
6750	C18
6751	C18
6790	H12
6791	H12
6792	H12
6830	H15
6831	I15
6832	J13
6833	J13
6850	N17
6851	O17
6870	D 9
6871	D 9
7500	A 7
7501	N 7
7501	N 8
7501	N 9
7501	N 9
7680	A 9
7711	C10
7712	C11
7713	O11
7713	B11
7713	O14
7713	O15
7713	N15
7730	H14
7740	L14
7740	F15
7740	L16
7741	F15
7741	E17
7741	M18
7741	F19
7750	B14
7750	C17
7750	M17
7770	E19
7771	E19
7772	E20
7773	F21
7790	I 8
7791	F 9
7791	I12
7791	L14
7791	I15
7792	F 9
7810	N10
7810	L10
7810	K10
7810	K11
7810	M11
7810	L11
7811	G11
7811	E13
7811	D14
7830	C12
7830	N14
7830	I15
7830	C16
7850	K19
7851	N19
7852	M20
7852	J20
7871	D10
7880	H18
7881	I18

SERVO-2

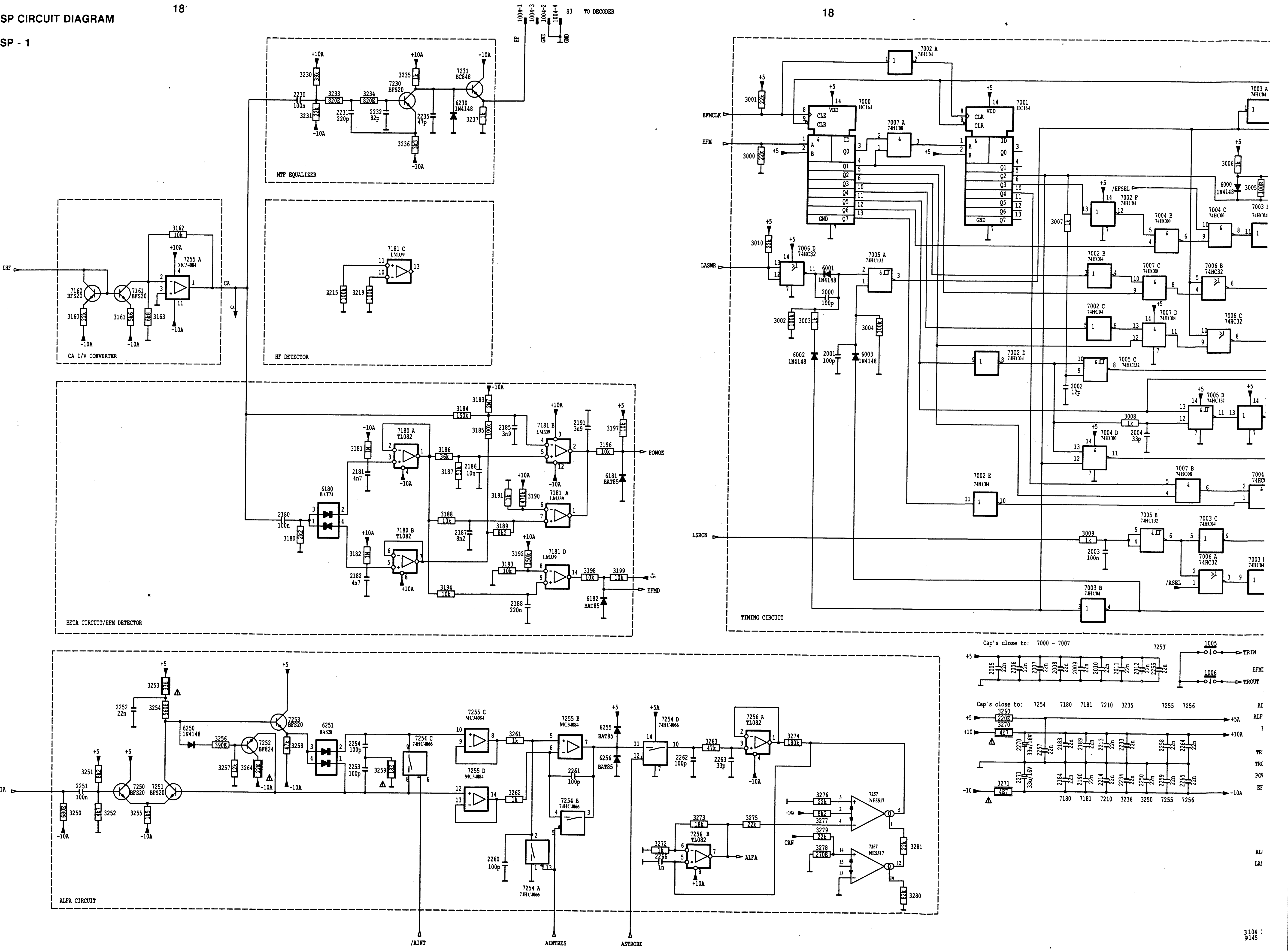
AM	- Additional Mute
CRI	- Counter Reset Inhibit
FOCOK	- In Focus Signal
FOCON	- Focus On
GND	- Ground
LSRON	- Laser On
MREADY	- Turntable Motor Ready
RACT+ -	- Radial Actuator
RADJ	- Radial Gain Adjust
RBI	- Radial Brake Inhibit
REGAIN	- Radial Gain Current
REN	- Radial Error Normalized
REN-A	- Radial Error Normalized A
RGH	- Radial Gain High
RIRES	- Radial Integrator Reset
RISET	- Radial Integrator Preset
RJEN	- Radial Jump Enable
RJGAIN	- Radial Jump Gain
RJV1-7	- Radial Jump Voltage
RLS	- Radial Loop Switch
RP	- Radial Polarity
RPDIV	- Radial Polarity Divider
RTL	- Radial Track Loss
SACK	- Servo Acknowledge
SDAT	- Servo Data
SLBS	- Slide Begin Switch
SLIN	- Slide Inwards Pulse
SLLS	- Slide Servo Loopswitch
SLMOT+ -	- Slide Motor
SLOR/RKDAC	- Slide Outwards Request/ADC Determination Radial Amplitude
SLOUT	- Slide Outwards Pulse
SRCRG	- Shift Register Clock Radial Gain
SRDAT	- Shift Register Data
SREQ	- Servo Request
SRST	- Servo Reset
TLN	- Trackloss Normalized


DO
FOCOK
FOCON
MREADY
REN-A
RTV6
RJV7
RP
RPDIV
RPS
SRCRC
SRDAT
+5A
+5B
+5C
+9
-9
+10
-10
TO/FROM SERVO-1 CIRCUIT

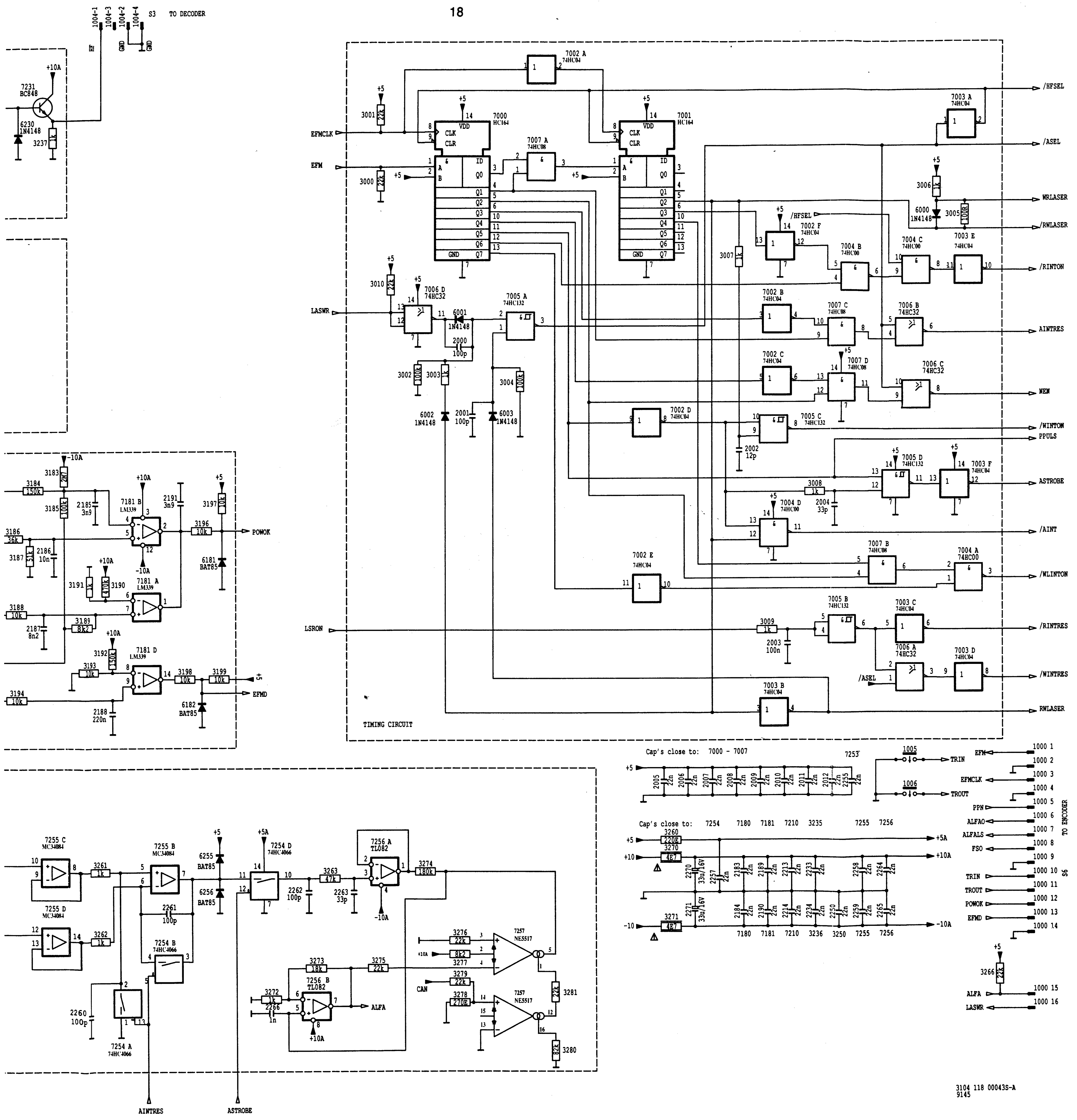


WOSP CIRCUIT DIAGRAM

WOSP - 1


1004-1
1004-3
1004-2
1004-4
HF
GND
GND
S3
TO DECODER
MTF EQUALIZER
3230 39k
2230 100n
3231 22k
3233 820E
3234 820E
2231 220p
2232 82p
7230 BFS20
3235 1k
3236 3k3
2235 47p
7231 BC848
6230 1N4148
3237 1k
+10A
-10A
HF DETECTOR
7181 C LM339
3215 100k
3219 100k
CA I/V CONVERTER
IHF
3162 10k
7255 A MC34084
7160 BFS20
7161 BFS20
3160 22k
3161 5k6
3163 6k8
CA
BETA CIRCUIT/EFM DETECTOR
3183 2k7
3184 150k
3185 100k
2185 3n9
7181 B LM339
2191 3n9
3197 10k
3196 10k
POWOK
6181 BAT85
3181 1M
2181 4n7
7180 A TL082
3186 56k
3187 51k
2186 10n
6180 BAT74
2180 100n
3180 2k2
3191 1k
3190 470k
7181 A LM339
3188 10k
2187 8n2
3189 8k2
3182 1M
2182 4n7
7180 B TL082
3192 150k
7181 D LM339
3193 10k
3198 10k
3199 10k
+5
3194 10k
EFMD
6182 BAT85
2188 220n
ALFA CIRCUIT
IA
3250 680k
2251 100n
3251 8k2
3252 4k7
7250 BFS20
7251 BFS20
3255 1k5
3253 33E
3254 560E
2252 22n
6250 1N4148
3256 390E
7252 BF824
3257 12k
3264 2k2
3258 47E
7253 BFS20
6251 BAS28
2254 100p
2253 100p
3259 18E
7254 C 74HC4066
7255 C MC34084
7255 D MC34084
3261 1k
3262 1k
7255 B MC34084
2261 100p
7254 B 74HC4066
2260 100p
7254 A 74HC4066
6255 BAT85
6256 BAT85
+5A
7254 D 74HC4066
2262 100p
3263 47k
2263 33p
7256 A TL082
3274 180k
3273 18k
3275 22k
3272 1k
2256 1n
7256 B TL082
ALFA
3276 22k
3277 8k2
3279 22k
3278 270E
CAN
7257 NE5517
3281 22k
3280 82k
/AINT
AINTRES
ASTROBE
TIMING CIRCUIT
EFMCLK
EFM
3001 22k
3000 22k
7000 HC164
7001 HC164
7002 A 74HC04
7007 A 74HC08
VDD
CLK
CLR
ID
Q0
Q1
Q2
Q3
Q4
Q5
Q6
Q7
GND
LASWR
3010 22k
7006 D 74HC32
6001 1N4148
2000 100p
7005 A 74HC132
3002 100k
3003 1k
3004 100k
6002 1N4148
2001 100p
6003 1N4148
/HFSEL
3006 1k
6000 1N4148
3005 100k
7002 F 74HC04
3007 1k
7004 B 74HC00
7004 C 74HC00
7003 A 74HC04
7002 B 74HC04
7007 C 74HC08
7006 B 74HC32
7002 C 74HC04
7007 D 74HC08
7006 C 74HC32
7002 D 74HC04
7005 C 74HC132
2002 12p
7005 D 74HC132
3008 1k
7004 D 74HC00
2004 33p
7007 B 74HC08
7002 E 74HC04
LSRON
3009 1k
2003 100n
7005 B 74HC132
7003 C 74HC04
7006 A 74HC32
/ASEL
7003 B 74HC04
Cap's close to: 7000 - 7007
2005 22n
2006 22n
2007 22n
2008 22n
2009 22n
2010 22n
2011 22n
2012 22n
2255 22n
7253
1005
TRIN
1006
TROUT
Cap's close to: 7254 7180 7181 7210 3235 7255 7256
3260 220E
+5A
3270 4E7
+10A
2270 33u/16V
2257 22n
2183 22n
2189 22n
2213 22n
2233 22n
2258 22n
2264 22n
2271 33u/16V
2184 22n
2190 22n
2214 22n
2234 22n
2250 22n
2259 22n
2265 22n
3271 4E7
-10
-10A
7180 7181 7210 3236 3250 7255 7256

MZ 3083


TO DECODER
TIMING CIRCUIT
EFMCLK
EFM
LASWR
LSRON
/HFSEL
/ASEL
WRLASER
/RWLASER
/RINTON
AINTRES
NEN
/WINTON
PPULS
ASTROBE
/AINT
/WLINTON
/RINTRES
/WINTRES
RWLASER
POWOK
EFMD
ALFA
CAN
AINTRES
ASTROBE
Cap's close to: 7000 - 7007
Cap's close to: 7254 7180 7181 7210 3235 7255 7256
TRIN
TROUT
TO ENCODER
3104 118 00043S-A
9145

WOSP-1

AINT	- Absorption Integrator
AINTRES	- Absorption Integrator Reset
ALFA	- Actual Absorption
ALFA0	- Absorption Set
ALFALS	- Absorption Loop Switch
ASEL	- CA Current Select
ASTROBE	- Absorption Strobe
CA	- Central apperture signal
EFM	- Eight to Fourteen Modulation
EFMCLK	- EFM Clock
EFMD	- Eight to Fourteen Modulation Detect
FSO	- Forward Sense Diode Reference Current
GND	- Ground
HF	- High Frequency
HFSEL	- Select CA Current For HF Reading Purposes
IA	- 3 Spot Push Pull Diode Current
LASWR	- Laser Write/Non Read
LSRON	- Laser On
NEN	- Normalizer Enable
POWOK	- Writing Power Ok
PPN	- Normalized Push Pull Signal
RINTON	- Read Integrator On
RINTRES	- Read Integrator Reset
RWLASER	- Read/Nonwrite laserpower
TRIN	- Tray In Switch
TROUT	- Tray Out Switch
WINTON	- Write Integrator On
WLINTON	- Write Integrator On
WRLASER	- Write Mode/Non Read Mode Laser

WOSP PANEL COMPONENT SIDE

1000	E11
1001	A2
1002	A10
1003	B6
1004	B1
1005	F3
1006	F4
1007	A4
2000	F6
2001	E7
2002	F7
2003	F5
2004	E8
2005	E9
2006	F9
2007	F8
2008	E6
2009	E8
2010	E7
2011	F7
2012	E9
2020	D6
2021	B9
2022	B8
2023	D9
2024	D8
2025	B7
2026	C7
2027	D8
2028	D7
2029	D7
2030	C10
2031	B10
2032	B7
2033	C10
2034	C10
2035	D10
2100	E5
2101	B5
2102	B7
2103	C6
2104	C6
2105	B7
2106	B5
2107	B6
2108	D4
2109	C7
2110	D7
2111	C6
2112	C7
2113	B3
2114	B3
2115	B4
2116	B3
2117	B3
2118	B4
2119	B3
2120	B5
2121	B5
2122	C6
2180	E2
2181	F2
2182	E2
2183	F2
2184	F3
2185	F2
2186	F2
2187	E1
2188	D1
2189	E2
2190	E1
2191	F2
2213	C2
2214	C1
2230	B3
2231	B2
2232	B2
2233	A3
2234	B2
2250	C5
2251	C4
2252	C4
2253	C4
2254	C4
2255	C4
2257	D4
2258	C3
2259	C3
2260	C3
2261	C3
2262	D2
2263	D2
2264	D3
2265	E2
2266	D3
2270	A9
2271	A9
2272	B9
2273	B9
2274	B9
2275	B9
3000	D10
3001	E10
3002	F5
3003	E5
3004	F6
3005	F9
3006	F9
3007	F8
3008	E8
3009	F5
3010	E10
3019	D10
3020	D5
3021	E10
3022	E7
3023	E6
3024	E7
3025	D6
3026	E6
3028	D6
3029	C10
3030	C10
3031	B10
3032	D9
3033	D8
3034	D8
3035	D8
3036	D8
3037	D8
3038	D8
3039	D9
3040	D9
3041	D9
3042	D9
3043	D9
3044	D9
3045	C9
3046	B9
3047	C9
3048	C10
3049	B10
3050	C10
3051	C7
3052	C9
3053	C7
3054	B7
3055	D7
3056	B8
3057	C8
3058	C8
3059	C8
3060	C8
3061	C7
3062	C7
3063	C8
3064	B10
3065	B8
3100	E4
3101	E5
3102	E4
3103	B5
3104	D5
3105	C5
3106	C6
3107	C6
3108	B7
3109	C6
3110	C6
3111	B7
3112	C6
3113	C6
3114	D4
3115	C2
3116	B3
3117	B5
3118	B5
3119	C7
3120	C6
3121	C7
3122	B3
3123	B3
3124	C2
3125	B4
3126	B4
3127	B4
3128	A4
3129	B4
3130	B3
3131	A3
3132	A4
3133	A3
3140	C5
3141	C5
3142	C5
3143	C5
3144	C5
3160	B3
3161	C4
3162	B3
3163	C3
3180	E2
3181	F3
3182	E2
3183	F2
3184	E2
3185	E2
3186	F2
3187	F2
3188	E2
3189	E2
3190	E2
3191	E2
3192	D2
3193	D2
3194	D2
3196	F3
3197	F4
3198	F3
3199	F4
3215	C2
3219	C2
3230	A3
3231	B3
3233	B2
3234	B2
3235	A2
3236	B2
3237	B2
3250	C5
3251	C4
3252	D5
3253	D5
3254	C4
3255	C4
3256	D4
3257	D4
3258	C4
3259	C4
3260	D4
3261	C3
3262	C3
3263	D3
3264	D5
3266	E10
3270	B8
3271	A8
3272	D3
3273	D2
3274	D2
3275	E2
3276	D3
3277	E2
3278	D3
3279	D3
3280	D3
3281	E3
3779	B10
6000	F9
6001	E5
6002	E5
6003	F5
6020	D7
6021	D6
6022	E5
6023	E5
6024	D8
6025	D9
6026	D9
6027	C9
6028	C9
6029	B8
6030	D7
6031	D7
6032	C8
6033	C9
6034	E4
6035	E5
6036	D5
6037	B9
6038	B10
6100	E5
6101	D5
6102	D5
6103	D4
6104	D5
6105	B5
6106	D5
6107	C5
6108	C6
6109	C5
6180	E2
6181	E10
6182	D10
6230	A2
6250	C4
6251	C4
6255	C3
6256	D3
7000	E9
7001	F9
7002	F7
7003	E6
7004	E8
7005	E7
7006	F6
7007	E8
7020	E6
7021	D6
7022	D7
7024	D6
7026	D8
7027	D9
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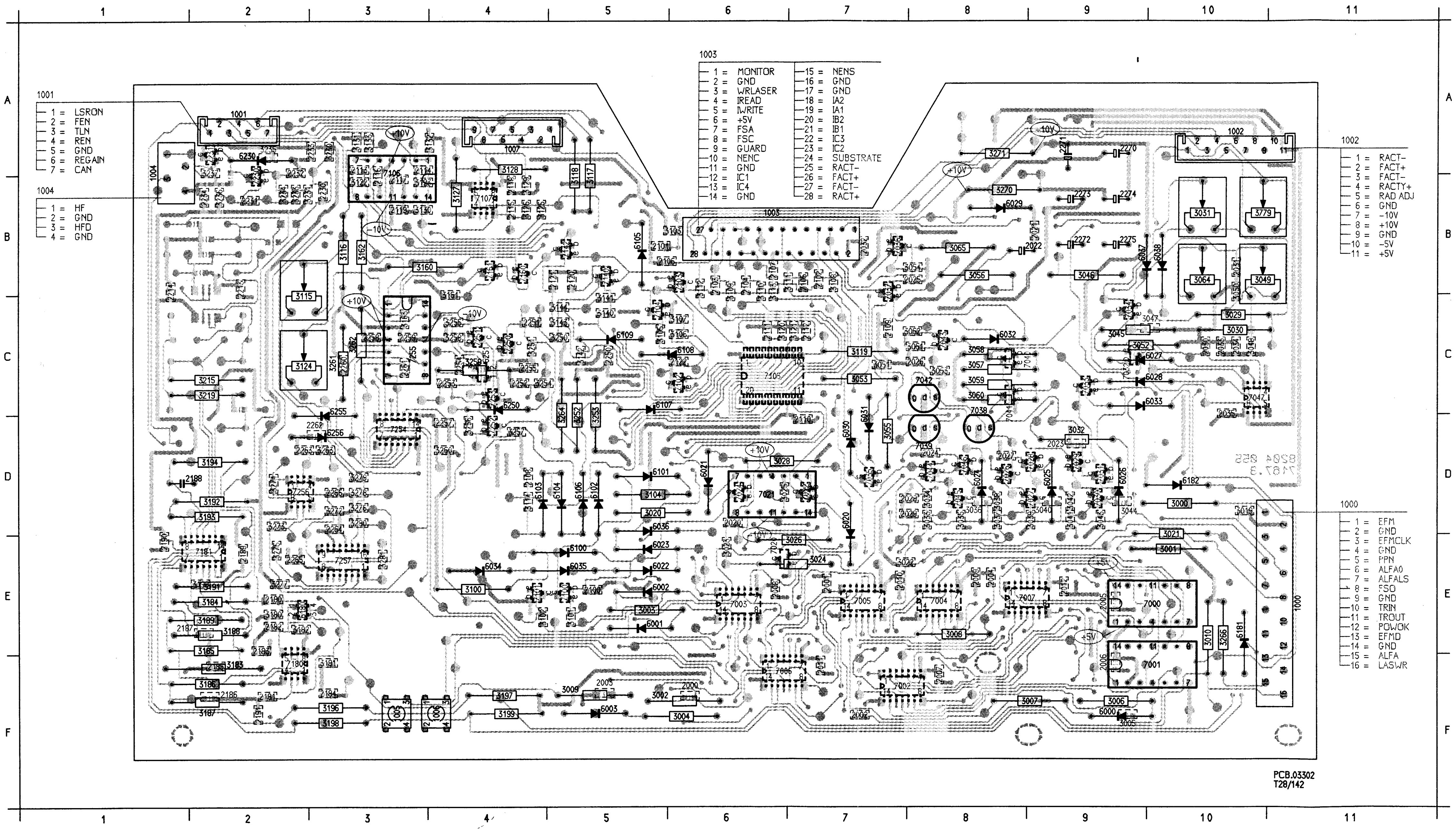
7029	D9
7030	D9
7031	D9
7032	C9
7033	C9
7034	C9
7035	D7
7036	B7
7037	C7
7038	C8
7039	D8
7040	C9
7041	D8
7042	C8
7043	C8
7044	D8
7045	D8
7046	D8
7047	C10
7100	E5
7101	E4
7102	C6
7103	B6
7104	C5
7105	C6
7106	B3
7107	B4
7140	B5
7142	B5
7160	B4
7161	B4
7180	F2
7181	E2
7230	B2
7231	A2
7250	C4
7251	C4
7252	D4
7253	C4
7254	D3
7255	C3
7256	D2
7257	E3


1001
1 = LSRON
2 = FEN
3 = TLN
4 = REN
5 = GND
6 = REGAIN
7 = CAN
1004
1 = HF
2 = GND
3 = HFD
4 = GND
1003
1 = MONITOR
2 = GND
3 = WRLASER
4 = IREAD
5 = IWRITE
6 = +5V
7 = FSA
8 = FSC
9 = GUARD
10 = NENC
11 = GND
12 = IC1
13 = IC4
14 = GND
15 = NENS
16 = GND
17 = GND
18 = IA2
19 = IA1
20 = IB2
21 = IB1
22 = IC3
23 = IC2
24 = SUBSTRATE
25 = RACT-
26 = FACT+
27 = FACT-
28 = RACT+
1002
1 = RACT-
2 = FACT+
3 = FACT-
4 = RACTY+
5 = RAD ADJ
6 = GND
7 = -10V
8 = +10V
9 = GND
10 = -5V
11 = +5V
1000
1 = EFM
2 = GND
3 = EFMCLK
4 = GND
5 = FPN
6 = ALFA0
7 = ALFALS
8 = FSO
9 = GND
10 = TRIN
11 = TROUT
12 = POWOK
13 = EFMD
14 = GND
15 = ALFA
16 = LASWR
1 2 3 4 5 6 7 8 9 10 11
A B C D E F
PCB.03302
T28/142

WOSP PANEL SOLDER SIDE

1000	E11	2011	F7	2101	B5	2120	B5	2232	B2	2270	A9	3021	E10	3041	D9	3060	C8	3113	C6
1001	A2	2012	E9	2102	B7	2121	B5	2233	A3	2271	A9	3022	E7	3042	D9	3061	C7	3114	D4
1002	A10	2020	D6	2103	C6	2122	C6	2234	B2	2272	B9	3023	E6	3043	D9	3062	C7	3115	C2
1003	B6	2021	B9	2104	C6	2180	E2	2250	C5	2273	B9	3024	E7	3044	D9	3063	C8	3116	B3
1004	B1	2022	B8	2105	B7	2181	F2	2251	C4	2274	B9	3025	D6	3045	C9	3064	B10	3117	B5
1005	F3	2023	D9	2106	B5	2182	E2	2252	C4	2275	B9	3026	E6	3046	B9	3065	B8	3118	B5
1006	F4	2024	D8	2107	B6	2183	F2	2253	C4	3000	D10	3028	D6	3047	C9	3100	E4	3119	C7
1007	A4	2025	B7	2108	D4	2184	F3	2254	C4	3001	E10	3029	C10	3048	C10	3101	E5	3120	C6
2000	F6	2026	C7	2109	C7	2185	F2	2255	C4	3002	F5	3030	C10	3049	B10	3102	E4	3121	C7
2001	E7	2027	D8	2110	D7	2186	F2	2257	D4	3003	E5	3031	B10	3050	C10	3103	B5	3122	B3
2002	F7	2028	D7	2111	C6	2187	E1	2258	C3	3004	F6	3032	D9	3051	C7	3104	D5	3123	B3
2003	F5	2029	D7	2112	C7	2188	D1	2259	C3	3005	F9	3033	D8	3052	C9	3105	C5	3124	C2
2004	E8	2030	C10	2113	B3	2189	E2	2260	C3	3006	F9	3034	D8	3053	C7	3106	C6	3125	B4
2005	E9	2031	B10	2114	B3	2190	E1	2261	C3	3007	F8	3035	D8	3054	B7	3107	C6	3126	B4
2006	F9	2032	B7	2115	B4	2191	F2	2262	D2	3008	E8	3036	D8	3055	D7	3108	B7	3127	B4
2007	F8	2033	C10	2116	B3	2213	C2	2263	D2	3009	F5	3037	D8	3056	B8	3109	C6	3128	A4
2008	E6	2034	C10	2117	B3	2214	C1	2264	D3	3010	E10	3038	D8	3057	C8	3110	C6	3129	B4
2009	E8	2035	D10	2118	B4	2230	B3	2265	E2	3019	D10	3039	D9	3058	C8	3111	B7	3130	B3
2010	E7	2100	E5	2119	B3	2231	B2	2266	D3	3020	D5	3040	D9	3059	C8	3112	C6	3131	A3

3132	A4	3188	E2	3237	B2	3272	D3	6024	D8	6104	D5	7005	E7	7038	C8	7142	B5
3133	A3	3189	E2	3250	C5	3273	D2	6025	D9	6105	B5	7006	F6	7039	D8	7160	B4
3140	C5	3190	E2	3251	C4	3274	D2	6026	D9	6106	D5	7007	E8	7040	C9	7161	B4
3141	C5	3191	E2	3252	D5	3275	E2	6027	C9	6107	C5	7020	E6	7041	D8	7180	F2
3142	C5	3192	D2	3253	D5	3276	D3	6028	C9	6108	C6	7021	D6	7042	C8	7181	E2
3143	C5	3193	D2	3254	C4	3277	E2	6029	B8	6109	C5	7022	D7	7043	C8	7230	B2
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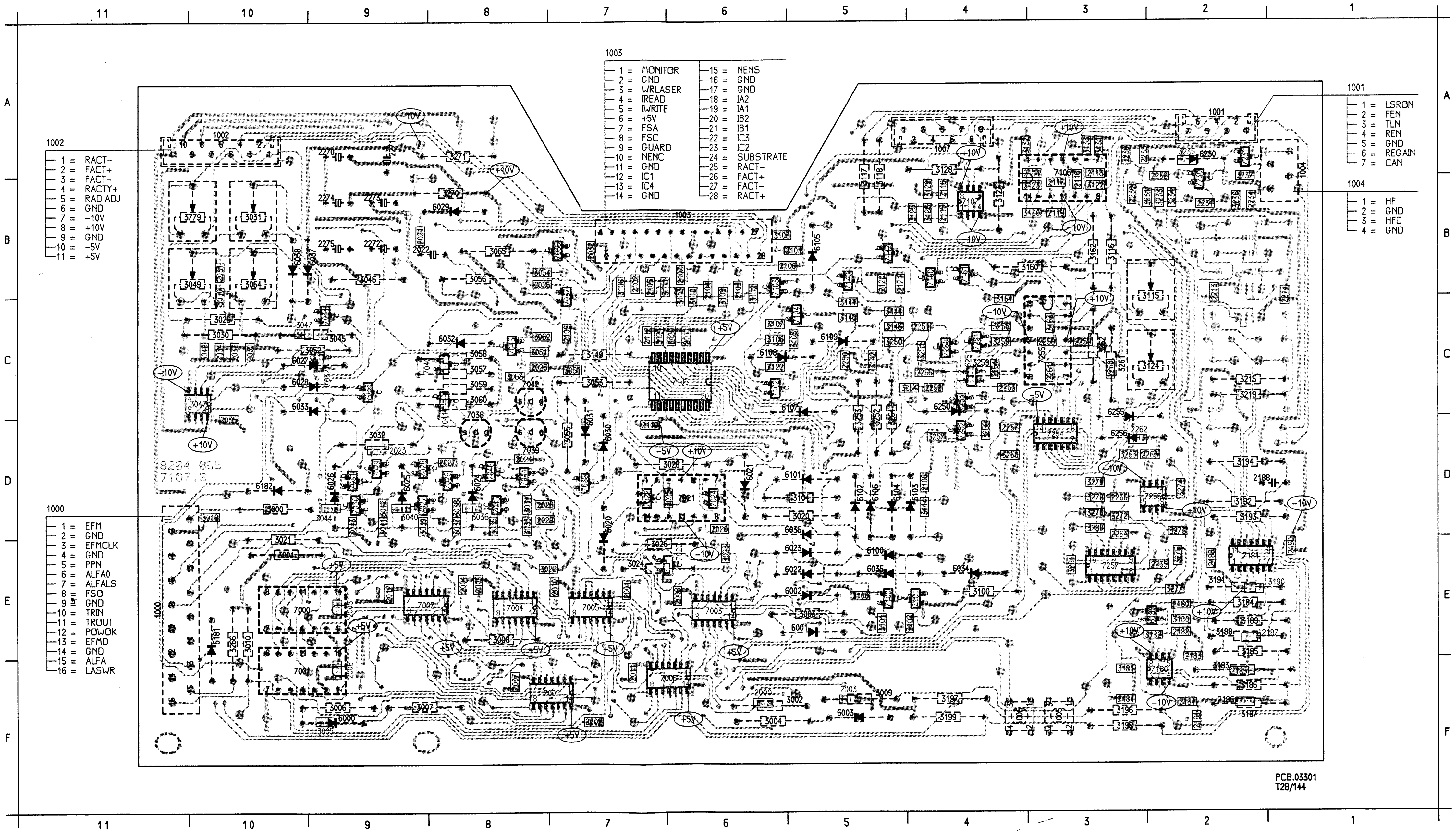
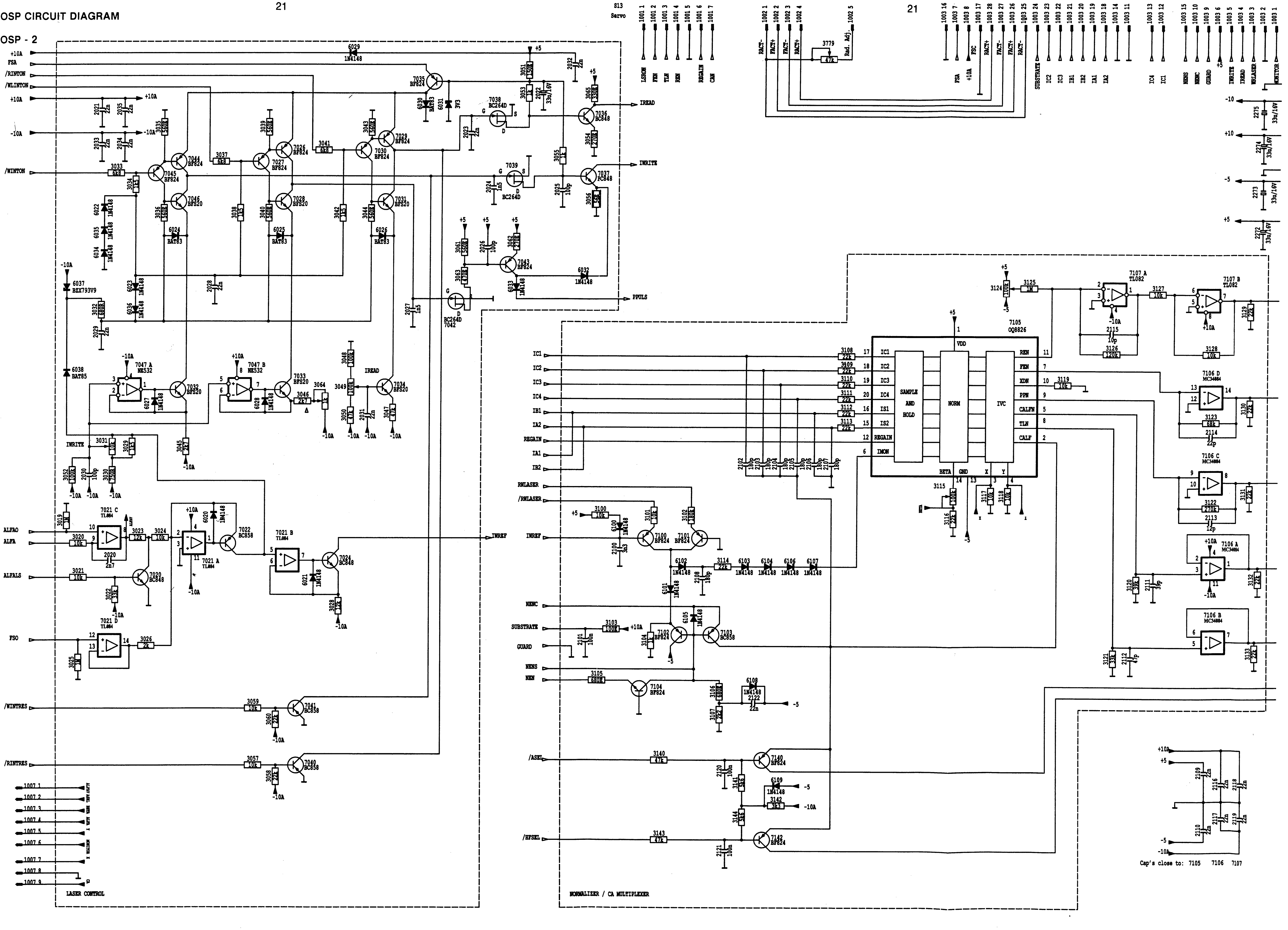
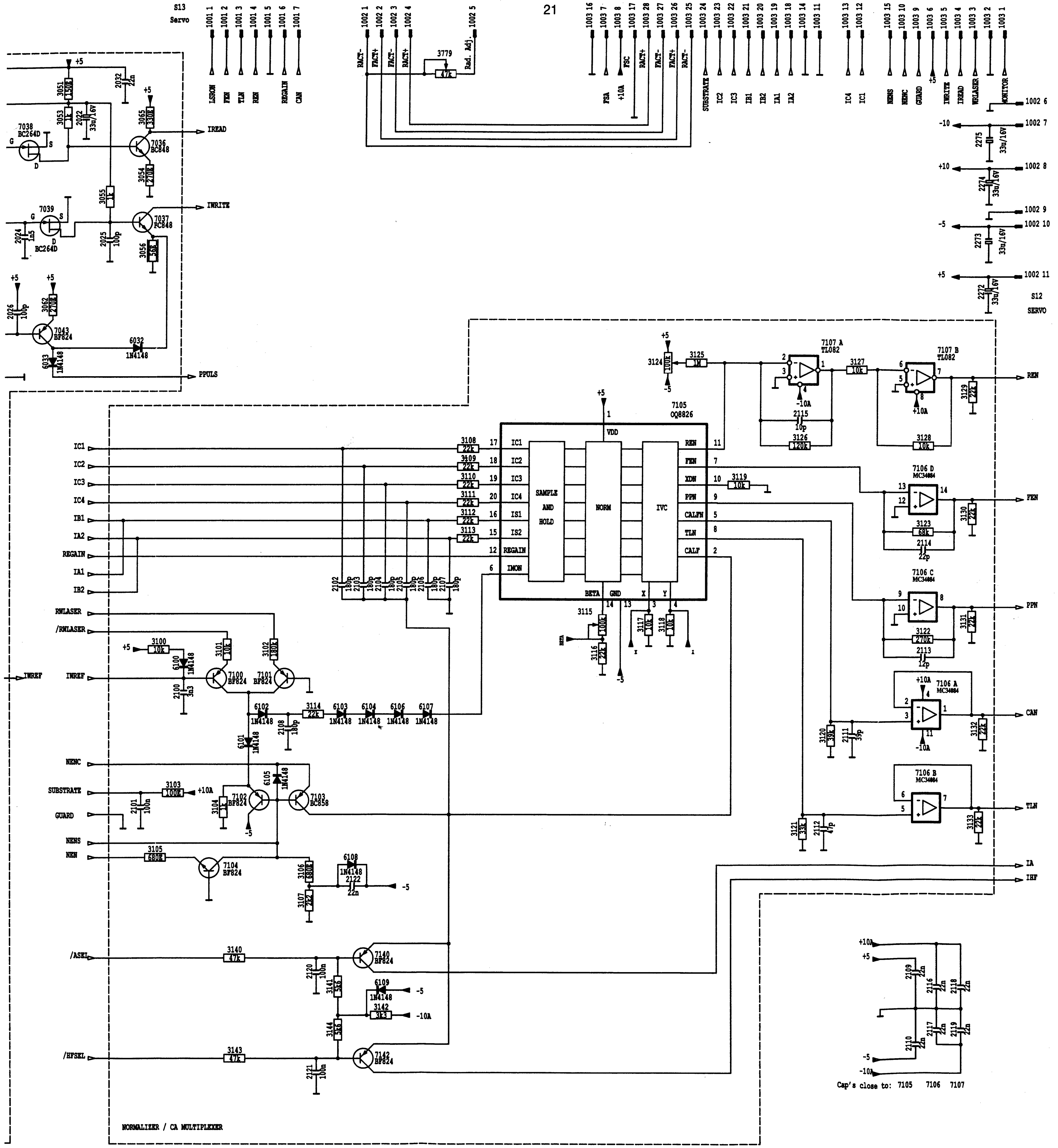
3160	B3	3196	F3	3256	D4	3279	D3	6031	D7	6181	E10	7026	D8	7045	D8	7250	C4
3161	C4	3197	F4	3257	D4	3280	D3	6032	C8	6182	D10	7027	D9	7046	D8	7251	C4
3162	B3	3198	F3	3258	C4	3281	E3	6033	C9	6230	A2	7028	D9	7047	C10	7252	D4
3163	C3	3199	F4	3259	C4	3779	B10	6034	E4	6250	C4	7029	D9	7100	E5	7253	C4
3180	E2	3215	C2	3260	D4	6000	F9	6035	E5	6251	C4	7030	D9	7101	E4	7254	D3
3181	F3	3219	C2	3261	C3	6001	E5	6036	D5	6255	C3	7031	D9	7102	C6	7255	C3
3182	E2	3230	A3	3262	C3	6002	E5	6037	B9	6256	D3	7032	C9	7103	B6	7256	D2
3183	F2	3231	B3	3263	D3	6003	F5	6038	B10	7000	E9	7033	C9	7104	C5	7257	E3
3184	E2	3233	B2	3264	D5	6020	D7	6100	E5	7001	F9	7034	C9	7105	C6		
3185	E2	3234	B2	3266	E10	6021	D6	6101	D5	7002	F7	7035	D7	7106	B3		
3186	F2	3235	A2	3270	B8	6022	E5	6102	D5	7003	E6	7036	B7	7107	B4		
3187	F2	3236	B2	3271	A8	6023	E5	6103	D4	7004	E8	7037	C7	7140	B5		


11
10
9
8
7
6
5
4
3
2
1
A
B
C
D
E
F
1003
1 = MONITOR
2 = GND
3 = WRLASER
4 = IREAD
5 = IWRITE
6 = +5V
7 = FSA
8 = FSC
9 = GUARD
10 = NENC
11 = GND
12 = IC1
13 = IC4
14 = GND
15 = NENS
16 = GND
17 = GND
18 = IA2
19 = IA1
20 = IB2
21 = IB1
22 = IC3
23 = IC2
24 = SUBSTRATE
25 = RACT-
26 = FACT+
27 = FACT-
28 = RACT+
1002
1 = RACT-
2 = FACT+
3 = FACT-
4 = RACTY+
5 = RAD ADJ
6 = GND
7 = -10V
8 = +10V
9 = GND
10 = -5V
11 = +5V
1001
1 = LSRON
2 = FEN
3 = TLN
4 = REN
5 = GND
6 = REGAIN
7 = CAN
1004
1 = HF
2 = GND
3 = HFD
4 = GND
1000
1 = EFM
2 = GND
3 = EFMCLK
4 = GND
5 = PPN
6 = ALFA0
7 = ALFALS
8 = FSO
9 = GND
10 = TRIN
11 = TROUT
12 = POWOK
13 = EFMD
14 = GND
15 = ALFA
16 = LASWR
+10V
-10V
+5V
-5V
8204 055
7167.3
PCB.03301
T28/144

WOSP CIRCUIT DIAGRAM

WOSP - 2

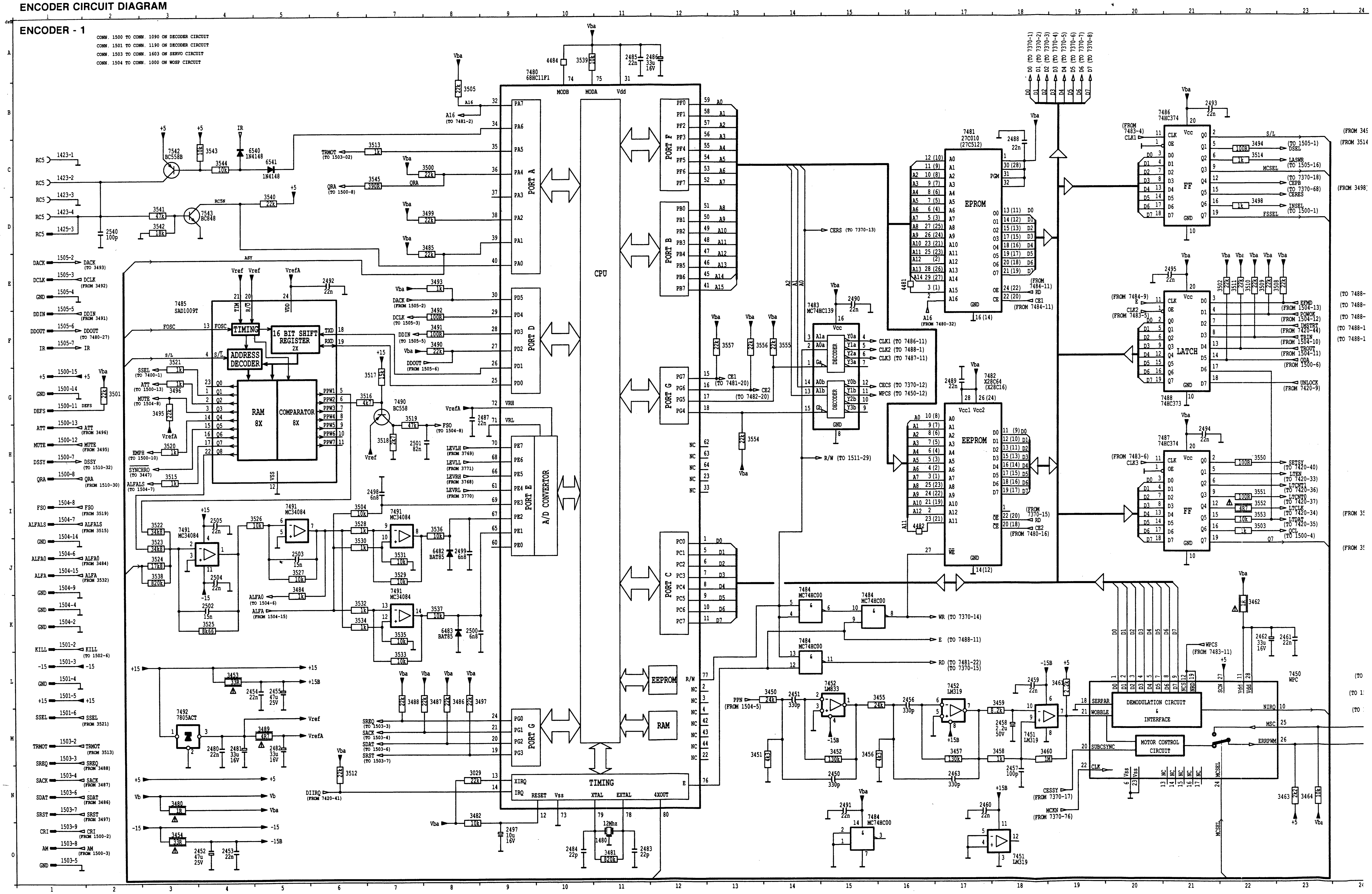

S13
Servo
1001 1
1001 2
1001 3
1001 4
1001 5
1001 6
1001 7
LSRON
FEN
TLN
REN
REGAIN
CAN
1002 1
1002 2
1002 3
1002 4
1002 5
RACT-
FACT+
FACT-
RACT+
3779
47k
Rad. Adj.
1003 16
1003 7
1003 8
1003 17
1003 28
1003 27
1003 26
1003 25
1003 24
1003 23
1003 22
1003 21
1003 20
1003 19
1003 18
1003 14
1003 11
1003 13
1003 12
1003 15
1003 10
1003 9
1003 6
1003 5
1003 4
1003 3
1003 2
1003 1
FSA
+10A
FSC
SUBSTRATE
IC2
IC3
IB1
IB2
IA1
IA2
IC4
IC1
NENS
NENC
GUARD
IWRITE
IREAD
RWLASER
MONITOR
+10A
FSA
/RINTON
/WLINTON
+10A
-10A
/WINTON
IREAD
IWRITE
PPULS
INREF
ALFAO
ALFA
ALFALS
FSO
/WINTRES
/RINTRES
7021 C TL084
7021 A TL084
7021 B TL084
7021 D TL084
7047 A NE532
7047 B NE532
7105 OQ8826
SAMPLE AND HOLD
NORM
IVC
VDD
BETA
GND
X
Y
IC1
IC2
IC3
IC4
IS1
IS2
REGAIN
IMON
REN
FEN
XDN
PPN
CALFN
TLN
CALF
7107 A TL082
7107 B TL082
7106 D MC34084
7106 C MC34084
7106 A MC34084
7106 B MC34084
IC1
IC2
IC3
IC4
IB1
IA2
REGAIN
IA1
IB2
RWLASER
/RWLASER
INREF
NENC
SUBSTRATE
GUARD
NENS
NEN
/ASEL
/HFSEL
1007 1
1007 2
1007 3
1007 4
1007 5
1007 6
1007 7
1007 8
1007 9
LASER CONTROL
NORMALIZER / CA MULTIPLEXER
-10
+10
-5
+5
2275 33u/16V
2274 33u/16V
2273 33u/16V
2272 33u/16V
+10A
+5
-5
-10A
Cap's close to: 7105 7106 7107


S13
Servo
1001 1
1001 2
1001 3
1001 4
1001 5
1001 6
1001 7
LSRON
FEN
TLN
REN
REGAIN
CAN
1002 1
1002 2
1002 3
1002 4
1002 5
RACT-
FACT+
FACT-
RACT+
3779
47k
Rad. Adj.
1003 16
1003 7
1003 8
1003 17
1003 28
1003 27
1003 26
1003 25
1003 24
1003 23
1003 22
1003 21
1003 20
1003 19
1003 18
1003 14
1003 11
1003 13
1003 12
1003 15
1003 10
1003 9
1003 6
1003 5
1003 4
1003 3
1003 2
1003 1
FSA
+10A
FSO
RACT+
FACT-
FACT+
RACT-
SUBSTRATE
IC2
IC3
IB1
IB2
IA1
IA2
IC4
IC1
NENS
NENC
GUARD
+5
IWRITE
IREAD
RWLASER
MONITOR
1002 6
1002 7
1002 8
1002 9
1002 10
1002 11
-10
+10
-5
+5
2275
2274
2273
2272
33u/16V
S12
SERVO
+5
3051
150k
2032
22n
3053
1k
2022
33u/16V
7038
BC264D
G
S
D
+5
3065
330R
7036
BC848
IREAD
3054
270R
3055
1k
7039
BC264D
2024
1n5
2025
100p
7037
BC848
IWRITE
3056
56R
+5
+5
2026
100p
3062
270R
7043
BF824
6032
1N4148
6033
1N4148
PPULS
+5
3124
100k
-5
3125
1M
7107 A
TL082
3127
10k
7107 B
TL082
-10A
+10A
2115
10p
3126
120k
3128
10k
3129
22k
REN
+5
7105
OQ8826
VDD
1
IC1
IC2
IC3
IC4
IB1
IB2
IA1
IA2
REGAIN
3108
22k
3109
22k
3110
22k
3111
22k
3112
22k
3113
22k
17
18
19
20
16
15
12
6
IC1
IC2
IC3
IC4
IS1
IS2
REGAIN
IMON
SAMPLE
AND
HOLD
NORM
IVC
REN
FEN
XDN
PPN
CALFN
TLN
CALF
11
7
10
9
5
8
2
3119
10k
7106 D
MC34004
13
12
14
3123
68k
2114
22p
3130
22k
FEN
7106 C
MC34004
9
10
8
3122
270k
2113
12p
3131
22k
PPN
2102
2103
2104
2105
2106
2107
180p
BETA
GND
X
Y
14
13
3
4
3115
100k
3116
22k
3117
10k
3118
10k
-5
x
+10A
7106 A
MC34004
2
3
1
4
11
-10A
3120
39k
2111
39p
3132
22k
CAN
7106 B
MC34004
6
5
7
3121
33k
2112
47p
3133
22k
TLN
IA
IHF
RWLASER
/RWLASER
+5
3100
10k
6100
1N4148
3101
10k
3102
180k
IWREF
IWREF
7100
BF824
7101
BF824
2100
3n3
6102
1N4148
3114
22k
6103
1N4148
6104
1N4148
6106
1N4148
6107
1N4148
2108
180p
6101
1N4148
NENC
SUBSTRATE
3103
100k
+10A
6105
1N4148
GUARD
2101
100n
3104
7102
BF824
7103
BC858
-5
NENS
NEN
3105
680R
7104
BF824
3106
180R
6108
1N4148
2122
22n
-5
3107
2k2
/ASEL
3140
47k
2120
100n
7140
BF824
3141
3k6
6109
1N4148
-5
3142
3k3
-10A
3144
3k6
/HFSEL
3143
47k
2121
100n
7142
BF824
+10A
+5
2109
22n
2116
22n
2118
22n
2110
22n
2117
22n
2119
22n
-5
-10A
Cap's close to: 7105 7106 7107
NORMALIZER / CA MULTIPLEXER

WOSP-2

ALFA	- Actual Absorption
ALFA0	- Absorption Set
ASEL	- CA Current Select
CALF	- Central Apperture Low Frequency
CALFN	- Central Apperture Low Frequency Normalized
CAN	- Central Apperture Normalized
FACT+ -	- Focus Actuator
FEN	- Focus Error Normalized
FSA	- Forward Sence Diode Anode
FSO	- Forward Sense Diode Reference Current
HFSEL	- Select CA Current For HF Reading Purposes
IB1-2	- 3 Spot Push Pull Diode Current
IC1-4	- 3 Spot Push Pull Diode Current
IHF	- CA Current To Remainder Part Of CA Processor
IMON	- Monitor Current
IWREF	- Laser Writing Power Reference
LSRON	- Laser On
NEN	- Enable All Photodiode Currents To Normalizer
NENC	- Enable Central Photodiode Currents To Normalizer
NENS	- Enable Satellite Photodiode Currents To Normalizer
PPN	- Normalized Push Pull Signal
RACT+ -	- Radial Actuator
REGAIN	- Radial Gain Current
REN	- Normalized Radial Error
RINTON	- Read Integrator On
RINTRES	- Read Integrator Reset
RWLASER	- Read/Non Write Laserpower
TLN	- Trackloss Normalized
WINTON	- Write Integrator On
WINTRES	- Write Integrator Reset
WLINTON	- Write Integrator On

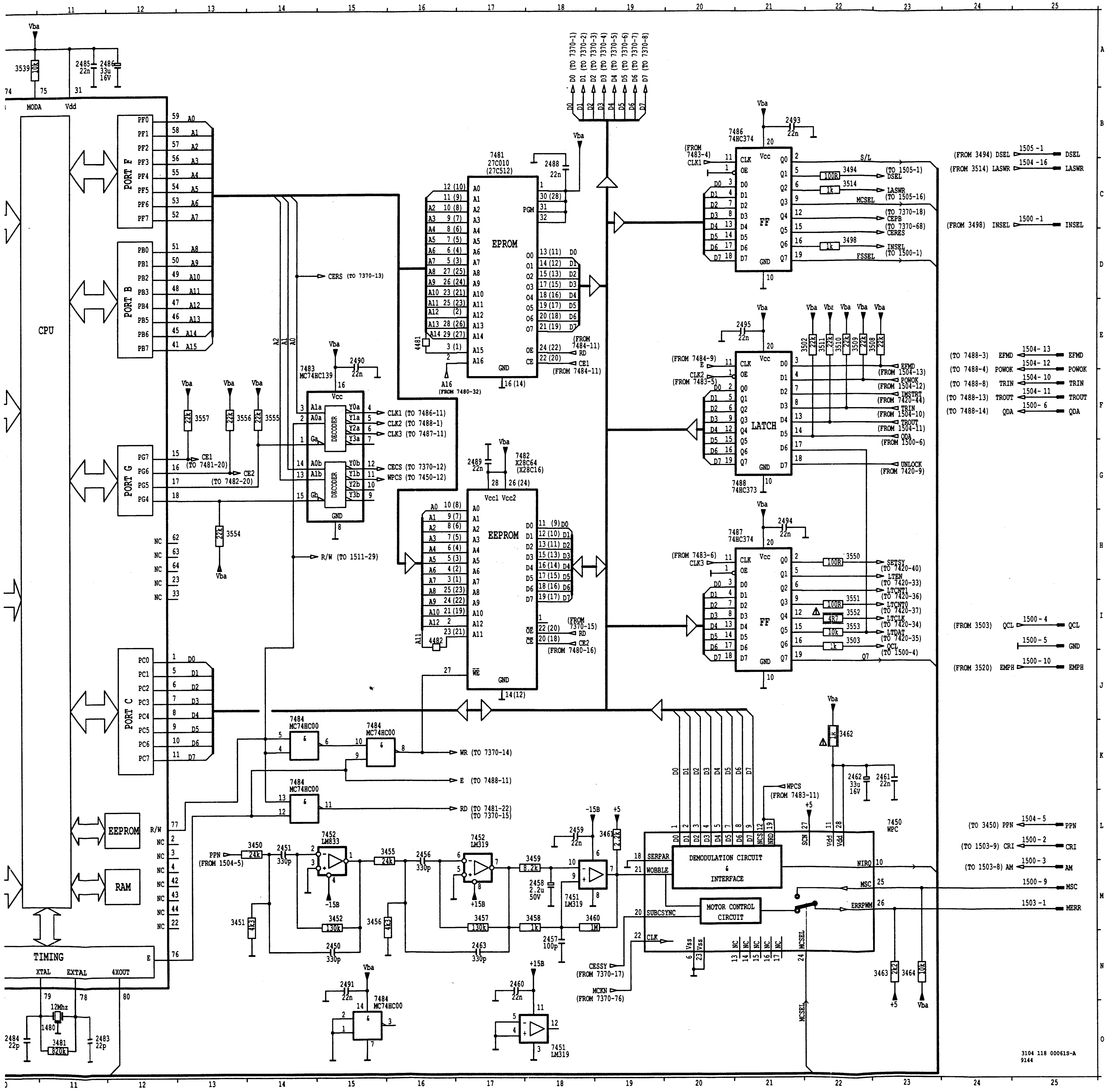
ENCODER CIRCUIT DIAGRAM



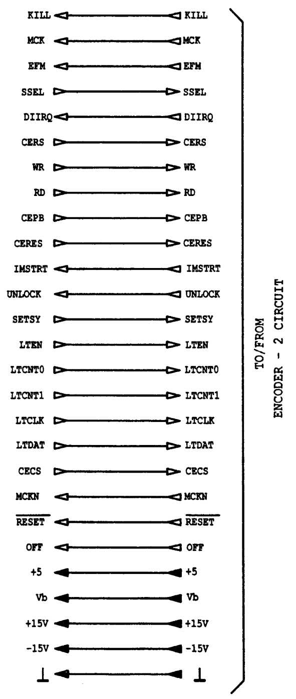
ENCODER - 1

CONN. 1500 TO CONN. 1090 ON DECODER CIRCUIT
CONN. 1501 TO CONN. 1190 ON DECODER CIRCUIT
CONN. 1503 TO CONN. 1603 ON SERVO CIRCUIT
CONN. 1504 TO CONN. 1000 ON WOSP CIRCUIT

7480
68HC11F1
CPU
PORT A
PORT B
PORT C
PORT D
PORT E
PORT F
PORT G
A/D CONVERTOR
TIMING
EEPROM
RAM
7485
SAD1009T
TIMING
16 BIT SHIFT REGISTER
ADDRESS DECODER
RAM 8X
COMPARATOR 8X
7481
27C010
(27C512)
EPROM
7482
X28C64
(X28C16)
EEPROM
7483
MC74HC139
DECODER
7484
MC74HC00
7486
74HC374
FF
7487
74HC374
FF
7488
74HC373
LATCH
7490
BC558
7491
MC34084
7492
7805ACT
7542
BC558B
7543
BC848
7450
WPC
DEMODULATION CIRCUIT & INTERFACE
MOTOR CONTROL CIRCUIT
7452
LM833
7452
LM319
7451
LM319
6540
1N4148
6541
1N4148
6482
BAT85
6483
BAT85
12Mhz
1480
RC5
DACK
DCLK
GND
DDIN
DDOUT
IR
DEFS
ATT
MUTE
DSSY
QRA
FSO
ALFALS
ALFA0
ALFA
KILL
SSEL
TRMOT
SREQ
SACK
SDAT
SRST
CRI
AM
+5
+15
-15
+15B
-15B
Vb
Vba
Vref
VrefA
D0 D1 D2 D3 D4 D5 D6 D7
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15
CERS (TO 7370-13)
R/W (TO 7511-29)
WR (TO 7370-14)
E (TO 7488-11)
RD (TO 7481-22) (TO 7370-15)
CLK1 (TO 7486-11)
CLK2 (TO 7488-1)
CLK3 (TO 7487-11)
CECS (TO 7370-12)
WPCS (TO 7450-12)
DSEL
LASWR
MCSEL
CEPB
CERES
INSEL
FSSEL
RFMD
POWOK
LMSTRT
TRIN
TROUT
ODA
UNLOCK
SETSY
LTEN
LTCNT1
LTCNT0
LTCLK
LTDAT
OCL
PPN (FROM 1504-5)
NIRQ
MSC
ERRPWM
SERPAR
WOBBLE
SUBCSYNC
CLK
CESSY (FROM 7370-17)
MCKN (FROM 7370-76)
DIIRQ (FROM 7420-41)


CPU
PORT F
PORT B
PORT G
PORT C
EEPROM
RAM
TIMING
XTAL
EXTAL
4XOUT
12Mhz
7481
27C010
(27C512)
EPROM
7482
X28C64
(X28C16)
EEPROM
7483
MC74HC139
DECODER
7486
74HC374
FF
7488
74HC373
LATCH
7487
74HC374
FF
7484
MC74HC00
7452
LM833
7452
LM319
7451
LM319
7450
WPC
DEMODULATION CIRCUIT & INTERFACE
MOTOR CONTROL CIRCUIT
SERPAR
WOBBLE
SUBCSYNC
CLK
NIRQ
MSC
ERRPWM
MCSEL
CERS (TO 7370-13)
R/W (TO 1511-29)
WR (TO 7370-14)
E (TO 7488-11)
RD (TO 7481-22) (TO 7370-15)
CESSY (FROM 7370-17)
MCKN (FROM 7370-76)
WPCS (FROM 7483-11)
(FROM 3494) DSEL
(FROM 3514) LASWR
(FROM 3498) INSEL
(TO 7488-3) EFMD
(TO 7488-4) POWOK
(TO 7488-8) TRIN
(TO 7488-13) TROUT
(TO 7488-14) QDA
(FROM 3503) QCL
(FROM 3520) EMPH
(TO 3450) PPN
(TO 1503-9) CRI
(TO 1503-8) AM
3104 118 00061S-A
9144

1423	D 1	2493	B21	3533	L 7
1423	C 1	2494	H21	3534	K 6
1423	C 1	2495	E21	3535	K 7
1423	C 1	2497	O 9	3536	I 8
1425	D 1	2498	I 7	3537	K 8
1480	O11	2499	J 8	3538	J 3
1500	H 1	2500	K 8	3539	A10
1500	H 1	2501	H 7	3540	D 5
1500	G 1	2502	K 4	3541	D 3
1500	G 1	2503	J 5	3542	D 3
1500	G 1	2504	J 4	3543	C 4
1500	G 1	2505	I 4	3544	C 4
1500	H 1	2540	D 2	3545	C 7
1500	C25	3029	N 8	3550	H22
1500	M25	3450	L14	3551	I22
1500	L25	3451	M13	3552	I22
1500	M25	3452	M15	3553	I22
1500	I25	3453	L 4	3554	H13
1500	J25	3454	O 3	3555	F14
1500	F25	3455	L15	3556	F13
1500	I25	3456	M15	3557	F13
1501	L 1	3457	M17	4481	E16
1501	M 1	3458	M18	4482	I16
1501	K 1	3459	L18	4484	A10
1501	L 1	3460	M18	6482	J 8
1501	L 1	3461	L19	6483	K 8
1503	M 1	3462	K22	6540	C 4
1503	M 1	3463	N23	6541	C 5
1503	N 1	3464	N23	7450	L23
1503	N 1	3480	N 3	7451	O18
1503	N 1	3481	O11	7451	M18
1503	O 1	3482	N 8	7452	L15
1503	O 1	3484	J 5	7452	L17
1503	O 1	3485	D 7	7480	A 9
1503	M25	3486	L 8	7481	B17
1504	I 1	3487	L 8	7482	G17
1504	J 1	3488	L 7	7483	E14
1504	J 1	3489	M 5	7484	J14
1504	J 1	3490	F 8	7484	K14
1504	I 1	3491	F 8	7484	K15
1504	K 1	3492	F 8	7484	N15
1504	K 1	3493	E 8	7485	E 3
1504	I 1	3494	C22	7486	B20
1504	C25	3495	G 3	7487	H20
1504	L25	3496	G 3	7488	G20
1504	E25	3497	L 8	7490	G 7
1504	E25	3498	D22	7491	I 7
1504	F25	3499	D 7	7491	J 7
1504	F25	3500	C 7	7491	I 5
1505	F 1	3501	G 2	7491	I 3
1505	E 1	3502	E22	7492	M 3
1505	E 1	3503	I22	7542	C 3
1505	E 1	3504	I 6	7543	D 4
1505	E 1	3505	B 8		
1505	F 1	3508	E23		
1505	B25	3509	E22		
2450	N15	3510	E22		
2451	L14	3511	E22		
2452	O 3	3512	N 6		
2453	O 4	3513	C 7		
2454	L 5	3514	C22		
2455	L 5	3515	H 3		
2456	L16	3516	G 6		
2457	N18	3517	G 6		
2458	M18	3518	H 7		
2459	L18	3519	G 7		
2460	N17	3520	H 3		
2461	K23	3521	F 3		
2462	K22	3522	I 3		
2463	N17	3523	J 3		
2480	M 4	3524	J 3		
2481	M 4	3525	K 4		
2482	M 5	3526	I 4		
2483	O11	3527	J 5		
2484	O10	3528	I 6		
2485	A11	3529	J 7		
2486	A11	3530	J 6		
2487	G 8	3531	J 7		
2488	C18	3532	K 6		
2489	G17				
2490	E15				
2491	N15				
2492	E 6				


KILL
MCK
EFM
SSEL
DIIRQ
CERS
WR
RD
CEPB
CERES
IMSTRT
UNLOCK
SETSY
LTEN
LTCNT0
LTCNT1
LTCLK
LTDAT
CECS
MCKN
RESET
OFF
+5
Vb
+15V
-15V
TO/FROM
ENCODER - 2 CIRCUIT

CONN. 1500 TO CONN. 1090 ON DECODER CIRCUIT
CONN. 1503 TO CONN. 1603 ON SERVO CIRCUIT
CONN. 1505 TO CONN. 1800 ON CONTROL AND DISPLAY

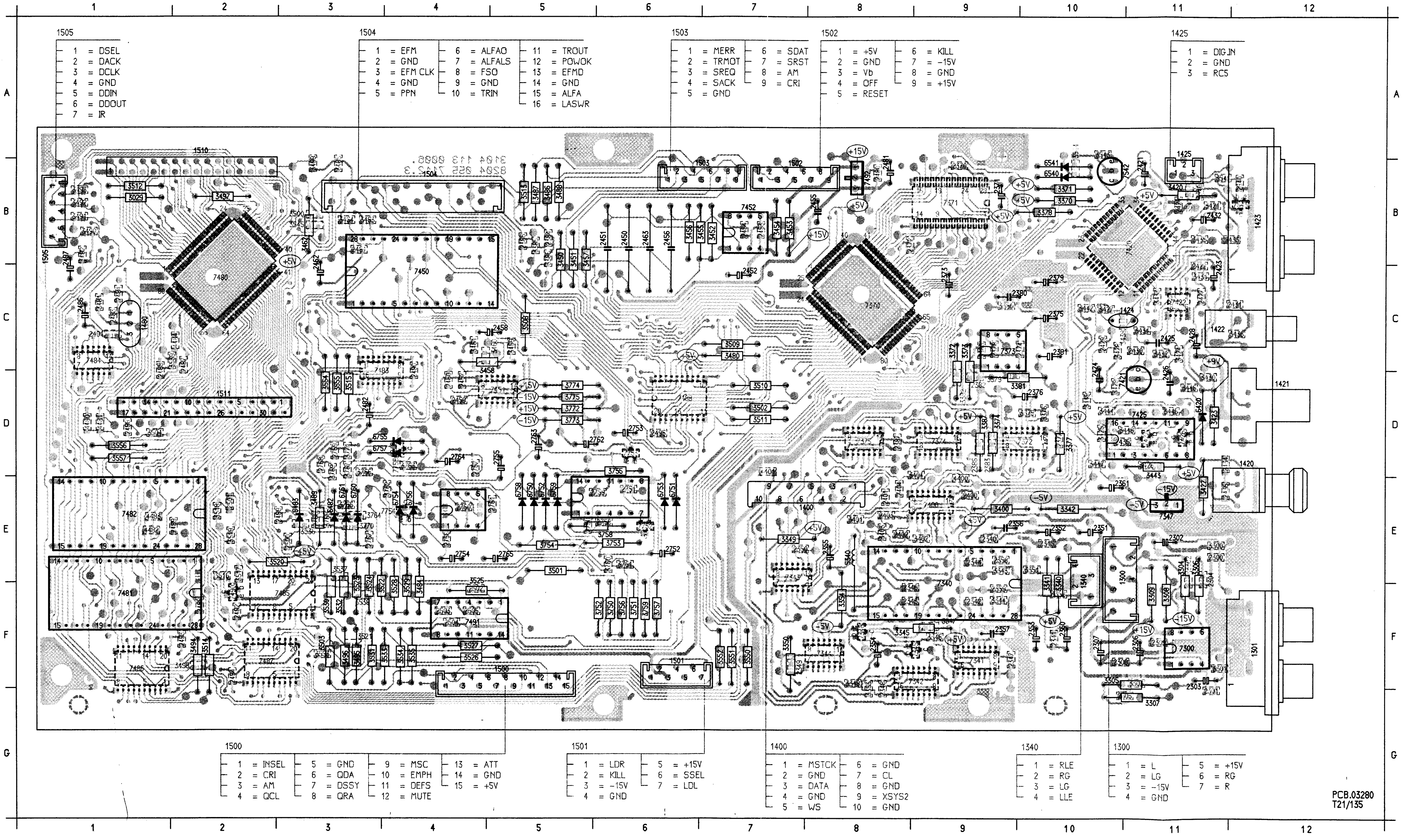
ENCODER-1

ALFA0	- Absorption Set
ALFALS	- Absorption Loop Switch
AM	- Additional Mute
ATT	- Attenuate
CE1-4	- Chip Enable
CECS	- CIRC EFM Chip Select
CEPB	- CIRC EFM Pause Bit
CERES	- CIRC EFM Reset
CLK	- System Clock Input
CLK1-3	- System Clock Input
CRI	- Counter Reset Inhit
D0 - 7	- Data Bus Bit 0 - 7
DACK	- Display Acknowledge
DCLK	- Display Clock
DDIN	- Display Data Input
DDOUT	- Display Data Output
DIIRQ	- Digital Input Interrupt Request
DSEL	- Display Select
DSSY	- Decoder Subcode Sync
EFM	- Eight to Fourteen Modulation
EFMCLK	- EFM Clock
EFMD	- Eight to Fourteen Modulation Detect
ERRPW	- Motor Control Signal Output
FSO	- Laser Power Set
GND	- Ground
IMSTRT	- Start New Message U bit Indication
INSEL	- Input Selector
IR	- Infrared Receiver Signal
LASWR	- Laser Write/Read
LEVLH	- Analog Level Left High
LEVLL	- Analog Level Left Low
LEVRH	- Analog Level Right High
LEVRL	- Analog Level Right Low
LTCLK	- Interface Data Bit Clock
LTCNT0-1	- Interface Control
LTDAT	- Interface Databus
LTEN	- Interface Enable
MCK	- Master Clock
MCSEL	- Motor Control Select
MERR	- Motor Control Error Signal
MSC	- External Motor Control Input
NCS	- Output Enable
NIRQ	- Interrupt Request
NRD	- Read Input
POWOK	- Laser Power OK
PPN	- Normalized Push Pull Signal
PPW1 - 7	- Programmable Pulse Width Outputs
QCL	- Q-channel Clock
QDA	- Q-channel Data
QRA	- Q-channel Request Acknowledge
RD	- Read
RXD	- Serial Data
SACK	- Servo Acknowledge
SCN	- Scan Enable
SDAT	- Servo Data
SERPAR	- Interface Mode Selection
SETSY	- Setting Sync Signal
SREQ	- Servo Request
SRST	- Servo Reset
SSEL	- Source Select
SUBCSYNC	- Subcode Sync Input
TRIN	- Tray In Switch
TRMOT	- Tray Motor Control
TROUT	- Tray Out Switch
TXD	- Serial Clock
WOBBLE	- Wobble Input
WPCS	- Wobble Processor Chip Select

ENCODER PANEL COMPONENT SIDE

1300	F11	2303	F11	2355	E8	2385	B5	2434	D11	2485	D1	2750	E5	3301	F11	3353	G8	3403	E8
1301	F12	2304	F11	2356	E9	2386	D9	2435	D10	2486	C1	2751	E6	3302	F11	3354	F8	3404	E8
1340	F10	2305	G10	2357	F9	2387	D8	2436	E11	2487	D2	2752	E6	3303	F11	3370	B10	3420	B11
1400	E7	2306	F11	2358	E9	2400	E9	2450	B6	2488	F2	2753	D6	3304	E11	3371	B10	3421	B11
1420	D12	2307	F10	2359	F9	2401	E8	2451	B6	2489	E2	2754	E4	3305	F10	3372	C9	3422	E11
1421	D12	2308	F10	2360	F10	2402	E8	2452	C7	2490	D4	2755	D5	3306	E11	3373	C9	3423	D11
1422	C12	2309	F11	2361	E10	2403	E8	2453	B7	2491	C1	2756	E4	3307	G11	3374	D9	3424	C11
1423	B12	2340	E9	2370	B9	2404	E8	2454	B7	2492	F2	2757	E4	3308	F11	3375	D10	3425	D10
1424	C10	2341	F10	2371	B9	2420	B11	2455	B8	2493	F2	2758	E6	3309	F11	3376	D10	3426	D11
1425	A11	2342	F9	2372	B9	2421	B11	2456	B6	2494	F2	2759	E5	3340	F10	3377	D10	3427	C10
1480	C1	2343	F8	2373	C9	2422	C11	2457	D4	2495	D6	2760	E4	3341	F10	3378	B10	3428	C10
1500	F5	2344	E9	2374	C10	2423	C11	2458	C5	2496	F5	2761	E5	3342	E10	3379	D9	3429	D10
1501	F6	2345	E10	2375	C10	2424	D10	2459	D4	2497	C1	2762	D5	3343	E9	3380	C9	3430	D11
1502	B7	2346	F8	2376	D10	2425	C11	2460	D4	2498	D1	2763	D5	3344	F9	3381	D9	3431	C11
1503	B6	2347	F9	2377	D10	2426	D11	2461	B3	2499	E3	2764	D4	3345	F8	3382	D9	3432	C11
1504	B4	2348	G8	2378	C9	2427	C11	2462	C3	2500	E3	2765	E5	3346	F9	3383	C9	3433	C11
1505	B1	2349	F7	2379	C10	2428	C11	2463	B6	2501	E2	2766	E3	3347	F9	3385	B5	3434	C11
1510	A2	2350	E7	2380	C9	2429	C10	2480	B8	2502	F4	2767	E3	3348	F8	3386	C5	3435	B11
1511	D2	2351	E10	2381	C10	2430	C11	2481	B8	2503	F4	2768	D3	3349	E7	3387	D9	3436	C12
2300	E11	2352	E10	2382	D9	2431	C11	2482	D3	2504	F4	2769	D3	3350	F7	3400	E9	3438	C11
2301	G11	2353	F10	2383	D9	2432	B11	2483	C1	2505	F4	3029	B1	3351	E10	3401	E8	3442	C10
2302	E11	2354	F8	2384	B5	2433	B11	2484	C1	2540	B12	3300	E11	3352	F10	3402	E9	3443	E11

3444	D10	3481	C1	3504	D1	3529	F4	3555	D3	3769	E3	6752	E5	7373	C9	7489	F5
3445	D11	3482	C1	3508	C5	3530	F3	3556	D1	3770	E3	6753	E6	7374	D9	7490	F2
3446	D11	3484	F4	3509	C7	3531	F3	3557	D1	3771	D3	6754	E4	7375	D8	7491	F4
3447	D10	3485	B3	3510	D7	3532	F3	3750	F6	3772	D5	6755	D3	7400	E9	7492	B8
3448	D10	3486	B5	3511	D7	3533	F4	3751	F6	3773	D5	6756	E4	7420	B11	7542	B11
3449	D10	3487	B5	3512	B1	3534	F4	3752	F6	3774	D5	6757	D3	7421	D11	7543	B12
3450	C5	3488	B5	3513	B5	3535	F4	3753	E6	3775	D5	6758	E5	7422	C11	7752	E6
3451	C5	3489	E3	3514	F2	3536	E3	3754	E5	4400	E9	6759	E5	7425	D11	7753	D6
3452	B7	3490	B1	3515	D3	3537	E3	3755	D6	4401	D7	6760	E3	7426	D11	7754	E3
3453	B7	3491	B1	3516	E2	3538	F3	3756	F6	4480	D1	6761	E3	7427	D11	7755	D4
3454	B7	3492	B1	3517	E2	3539	D2	3757	F6	4481	D1	7300	F11	7450	C4		
3455	B7	3493	B1	3518	E2	3540	B11	3758	E6	4482	E1	7340	F9	7451	D5		
3456	B6	3494	F2	3519	E2	3541	B11	3759	F6	4483	E1	7341	F9	7452	B7		
3457	C5	3495	F3	3520	E2	3542	B11	3760	E6	4484	C2	7342	F8	7480	C2		
3458	D4	3496	F3	3521	F3	3543	A10	3761	E6	5340	E8	7343	E7	7481	F1		
3459	C5	3497	B2	3522	F4	3544	B10	3762	E4	6420	D11	7344	F8	7482	E1		
3460	C5	3498	F2	3523	F3	3545	B3	3763	D4	6482	E3	7345	F9	7483	D3		
3461	C4	3499	B3	3524	F3	3550	F7	3764	E3	6483	E3	7346	F8	7484	C1		
3462	B3	3500	B3	3525	F4	3551	F7	3765	E3	6540	B10	7347	E11	7485	F2		
3463	B3	3501	E5	3526	F4	3552	F7	3766	E3	6541	B10	7370	C8	7486	F1		
3464	B3	3502	D7	3527	F4	3553	F3	3767	E3	6750	E5	7371	B9	7487	F2		
3480	C7	3503	F3	3528	F4	3554	D3	3768	E3	6751	E6	7372	D10	7488	D6		



1505
1 = DSEL
2 = DACK
3 = DCLK
4 = GND
5 = DDIN
6 = DDOUT
7 = IR

1504
1 = EFM
2 = GND
3 = EFM CLK
4 = GND
5 = PPN
6 = ALFAO
7 = ALFALS
8 = FSO
9 = GND
10 = TRIN
11 = TROUT
12 = POWOK
13 = EFMD
14 = GND
15 = ALFA
16 = LASWR

1503
1 = MERR
2 = TRMOT
3 = SREQ
4 = SACK
5 = GND
6 = SDAT
7 = SRST
8 = AM
9 = CRI

1502
1 = +5V
2 = GND
3 = Vb
4 = OFF
5 = RESET
6 = KILL
7 = −15V
8 = GND
9 = +15V

1425
1 = DIG.IN
2 = GND
3 = RC5

1500
1 = INSEL
2 = CRI
3 = AM
4 = QCL
5 = GND
6 = QDA
7 = DSSY
8 = QRA
9 = MSC
10 = EMPH
11 = DEFS
12 = MUTE
13 = ATT
14 = GND
15 = +5V

1501
1 = LDR
2 = KILL
3 = −15V
4 = GND
5 = +15V
6 = SSEL
7 = LDL

1400
1 = MSTCK
2 = GND
3 = DATA
4 = GND
5 = WS
6 = GND
7 = CL
8 = GND
9 = XSYS2
10 = GND

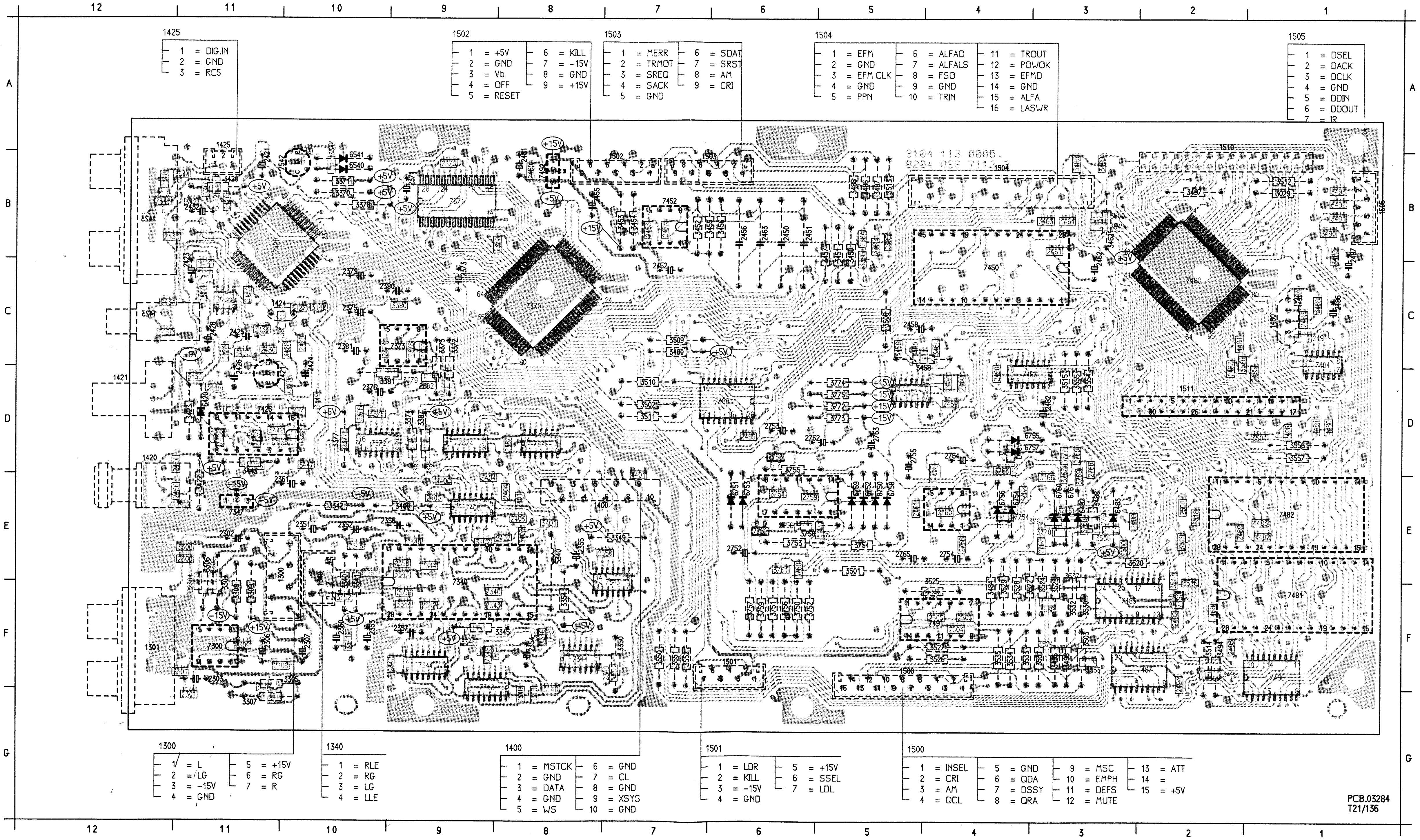
1340
1 = RLE
2 = RG
3 = LG
4 = LLE

1300
1 = L
2 = LG
3 = −15V
4 = GND
5 = +15V
6 = RG
7 = R

PCB.03280
T21/135

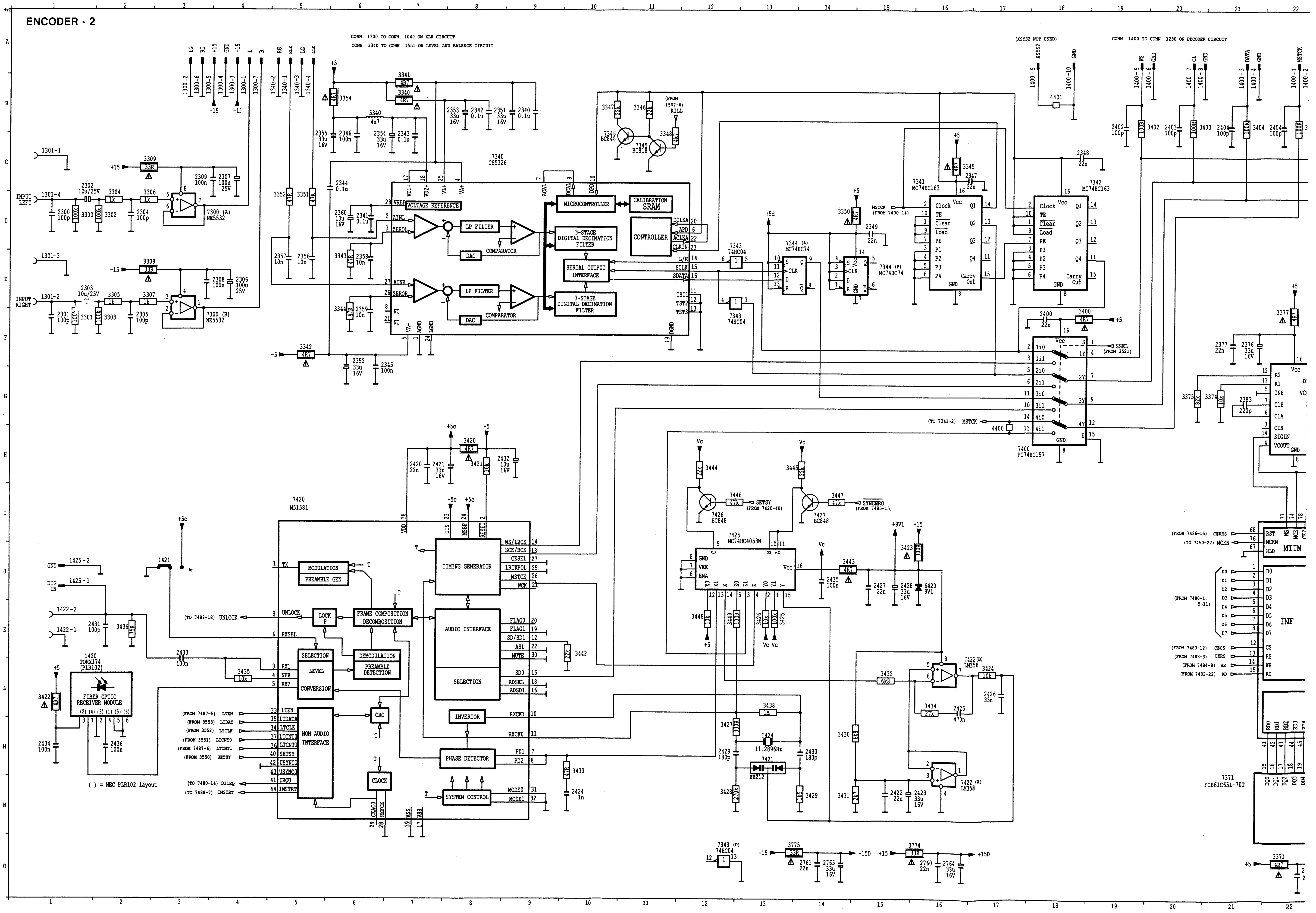
ENCODER PANEL SOLDER SIDE

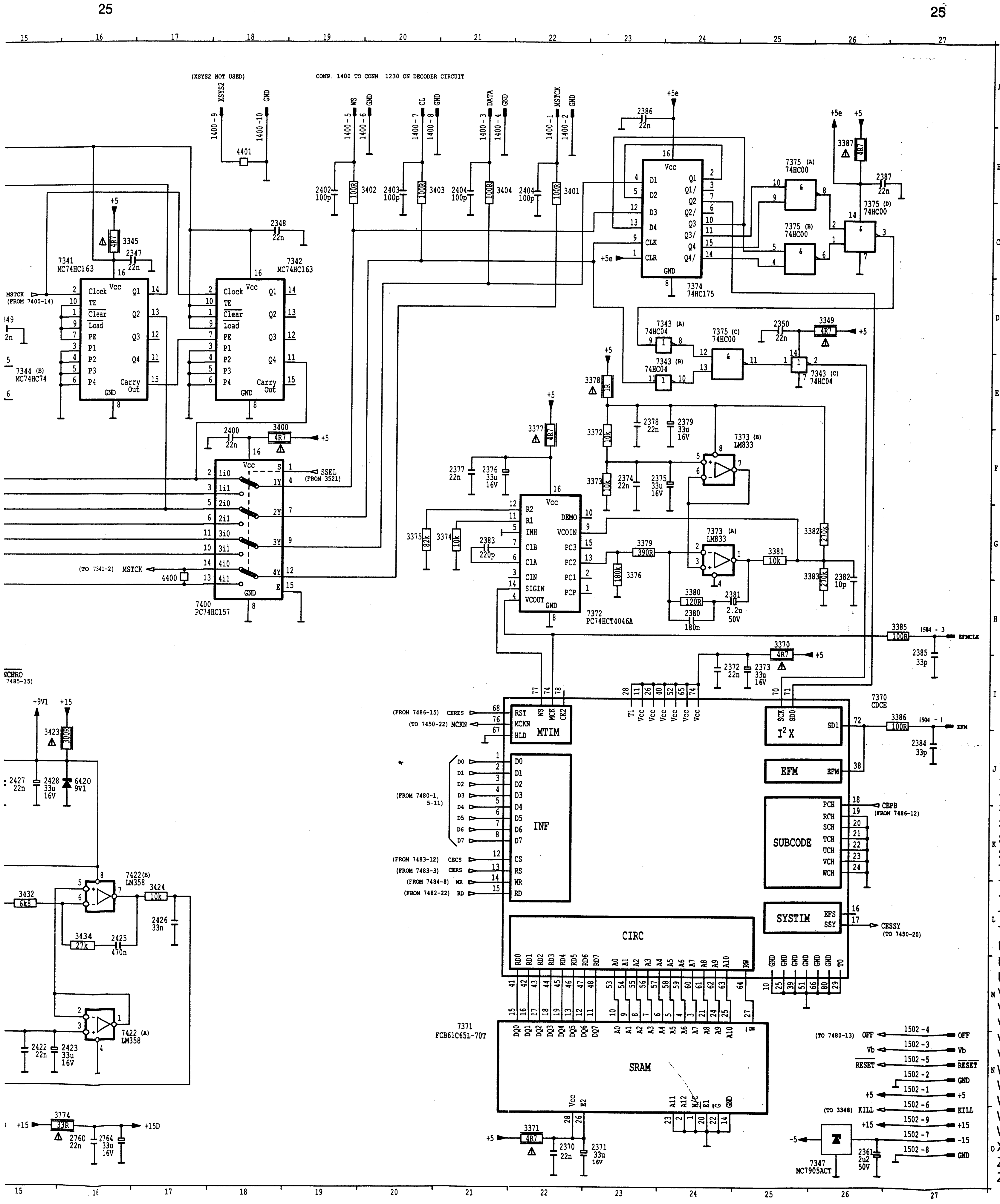
1300	F11
1301	F12
1340	F10
1400	E7
1420	D12
1421	D12
1422	C12
1423	B12
1424	C10
1425	A11
1480	C1
1500	F5
1501	F6
1502	B7
1503	B6
1504	B4
1505	B1
1510	A2
1511	D2
2300	E11
2301	G11
2302	E11
2303	F11
2304	F11
2305	G10
2306	F11
2307	F10
2308	F10
2309	F11
2340	E9
2341	F10
2342	F9
2343	F8
2344	E9
2345	E10
2346	F8
2347	F9
2348	G8
2349	F7
2350	E7
2351	E10
2352	E10
2353	F10
2354	F8
2355	E8
2356	E9
2357	F9
2358	E9
2359	F9
2360	F10
2361	E10
2370	B9
2371	B9
2372	B9
2373	C9
2374	C10
2375	C10
2376	D10
2377	D10
2378	C9
2379	C10
2380	C9
2381	C10
2382	D9
2383	D9
2384	B5
2385	B5
2386	D9
2387	D8
2400	E9
2401	E8
2402	E8
2403	E8
2404	E8
2420	B11
2421	B11
2422	C11
2423	C11
2424	D10
2425	C11
2426	D11
2427	C11
2428	C11
2429	C10
2430	C11
2431	C11
2432	B11
2433	B11
2434	D11
2435	D10
2436	E11
2450	B6
2451	B6
2452	C7
2453	B7
2454	B7
2455	B8
2456	B6
2457	D4
2458	C5
2459	D4
2460	D4
2461	B3
2462	C3
2463	B6
2480	B8
2481	B8
2482	D3
2483	C1
2484	C1
2485	D1
2486	C1
2487	D2
2488	F2
2489	E2
2490	D4
2491	C1
2492	F2
2493	F2
2494	F2
2495	D6
2496	F5
2497	C1
2498	D1
2499	E3
2500	E3
2501	E2
2502	F4
2503	F4
2504	F4
2505	F4
2540	B12
2750	E5
2751	E6
2752	E6
2753	D6
2754	E4
2755	D5
2756	E4
2757	E4
2758	E6
2759	E5
2760	E4
2761	E5
2762	D5
2763	D5
2764	D4
2765	E5
2766	E3
2767	E3
2768	D3
2769	D3
3029	B1
3300	E11
3301	F11
3302	F11
3303	F11
3304	E11
3305	F10
3306	E11
3307	G11
3308	F11
3309	F11
3340	F10
3341	F10
3342	E10
3343	E9
3344	F9
3345	F8
3346	F9
3347	F9
3348	F8
3349	E7
3350	F7
3351	E10
3352	F10
3353	G8
3354	F8
3370	B10
3371	B10
3372	C9
3373	C9
3374	D9
3375	D10
3376	D10
3377	D10
3378	B10
3379	D9
3380	C9
3381	D9
3382	D9
3383	C9
3385	B5
3386	C5
3387	D9
3400	E9
3401	E8
3402	E9
3403	E8
3404	E8
3420	B11
3421	B11
3422	E11
3423	D11
3424	C11
3425	D10
3426	D11
3427	C10
3428	C10
3429	D10
3430	D11
3431	C11
3432	C11
3433	C11
3434	C11
3435	B11
3436	C12
3438	C11
3442	C10
3443	E11
3444	D10
3445	D11
3446	D11
3447	D10
3448	D10
3449	D10
3450	C5
3451	C5
3452	B7
3453	B7
3454	B7
3455	B7
3456	B6
3457	C5
3458	D4
3459	C5
3460	C5
3461	C4
3462	B3
3463	B3
3464	B3
3480	C7
3481	C1
3482	C1
3484	F4
3485	B3
3486	B5
3487	B5
3488	B5
3489	E3
3490	B1
3491	B1
3492	B1
3493	B1
3494	F2
3495	F3
3496	F3
3497	B2
3498	F2
3499	B3
3500	B3
3501	E5
3502	D7
3503	F3
3504	D1
3508	C5
3509	C7
3510	D7
3511	D7
3512	B1
3513	B5
3514	F2
3515	D3
3516	E2
3517	E2
3518	E2
3519	E2
3520	E2
3521	F3
3522	F4
3523	F3
3524	F3
3525	F4
3526	F4
3527	F4
3528	F4
3529	F4
3530	F3
3531	F3
3532	F3
3533	F4
3534	F4
3535	F4
3536	E3
3537	E3
3538	F3
3539	D2
3540	B11
3541	B11
3542	B11
3543	A10
3544	B10
3545	B3
3550	F7
3551	F7
3552	F7
3553	F3
3554	D3
3555	D3
3556	D1
3557	D1
3750	F6
3751	F6
3752	F6
3753	E6
3754	E5
3755	D6
3756	F6
3757	F6
3758	E6
3759	F6
3760	E6
3761	E6
3762	E4
3763	D4
3764	E3
3765	E3
3766	E3
3767	E3
3768	E3
3769	E3
3770	E3
3771	D3
3772	D5
3773	D5
3774	D5
3775	D5
4400	E9
4401	D7
4480	D1
4481	D1
4482	E1
4483	E1
4484	C2
5340	E8
6420	D11
6482	E3
6483	E3
6540	B10
6541	B10
6750	E5
6751	E6
6752	E5
6753	E6
6754	E4
6755	D3
6756	E4
6757	D3
6758	E5
6759	E5
6760	E3
6761	E3
7300	F11
7340	F9
7341	F9
7342	F8
7343	E7
7344	F8
7345	F9
7346	F8
7347	E11
7370	C8
7371	B9
7372	D10
7373	C9
7374	D9
7375	D8
7400	E9
7420	B11
7421	D11
7422	C11
7425	D11
7426	D11
7427	D11
7450	C4
7451	D5
7452	B7
7480	C2
7481	F1
7482	E1
7483	D3
7484	C1
7485	F2
7486	F1
7487	F2
7488	D6
7489	F5
7490	F2
7491	F4
7492	B8
7542	B11
7543	B12
7752	E6
7753	D6
7754	E3
7755	D4



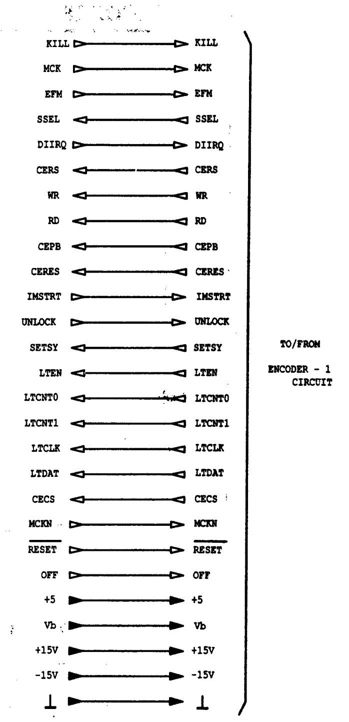
12
11
10
9
8
7
6
5
4
3
2
1
A
B
C
D
E
F
G
1425
1 = DIG.IN
2 = GND
3 = RC5
1502
1 = +5V
2 = GND
3 = Vb
4 = OFF
5 = RESET
6 = KILL
7 = –15V
8 = GND
9 = +15V
1503
1 = MERR
2 = TRMOT
3 = SREQ
4 = SACK
5 = GND
6 = SDAT
7 = SRST
8 = AM
9 = CRI
1504
1 = EFM
2 = GND
3 = EFM CLK
4 = GND
5 = PPN
6 = ALFAO
7 = ALFALS
8 = FSO
9 = GND
10 = TRIN
11 = TROUT
12 = POWOK
13 = EFMD
14 = GND
15 = ALFA
16 = LASWR
1505
1 = DSEL
2 = DACK
3 = DCLK
4 = GND
5 = DDIN
6 = DDOUT
7 = IR
3104 113 0006.
8204 055 7112.2
1510
1511
7480
7450
7370
7421
7482
7481
+5V
+15V
–15V
–5V
1300
1 = L
2 = LG
3 = –15V
4 = GND
5 = +15V
6 = RG
7 = R
1340
1 = RLE
2 = RG
3 = LG
4 = LLE
1400
1 = MSTCK
2 = GND
3 = DATA
4 = GND
5 = WS
6 = GND
7 = CL
8 = GND
9 = XSYS
10 = GND
1501
1 = LDR
2 = KILL
3 = –15V
4 = GND
5 = +15V
6 = SSEL
7 = LDL
1500
1 = INSEL
2 = CRI
3 = AM
4 = QCL
5 = GND
6 = QDA
7 = DSSY
8 = QRA
9 = MSC
10 = EMPH
11 = DEFS
12 = MUTE
13 = ATT
14 =
15 = +5V
PCB.03284
T21/136

ENCODER CIRCUIT DIAGRAM


ENCODER - 2
CONN. 1300 TO CONN. 1040 ON XLR CIRCUIT
CONN. 1340 TO CONN. 1551 ON LEVEL AND BALANCE CIRCUIT
(XSYS2 NOT USED)
CONN. 1400 TO CONN. 1230 ON DECODER CIRCUIT
INPUT LEFT
INPUT RIGHT
7300 (A) NE5532
7300 (B) NE5532
7340 CS5326
VOLTAGE REFERENCE
LP FILTER
COMPARATOR
DAC
MICROCONTROLLER
CALIBRATION SRAM
3-STAGE DIGITAL DECIMATION FILTER
CONTROLLER
SERIAL OUTPUT INTERFACE
7345 BC818
7346 BC848
7343 74HC04
7344 (A) MC74HC74
7344 (B) MC74HC74
7341 MC74HC163
7342 MC74HC163
7400 PC74HC157
7420 M51581
MODULATION PREAMBLE GEN.
LOCK P
FRAME COMPOSITION DECOMPOSITION
SELECTION LEVEL CONVERSION
DEMODULATION PREAMBLE DETECTION
NON AUDIO INTERFACE
CRC
CLOCK
TIMING GENERATOR
AUDIO INTERFACE
SELECTION
INVERTOR
PHASE DETECTOR
SYSTEM CONTROL
1420 TORX174 (PLR102)
FIBER OPTIC RECEIVER MODULE
( ) = NEC PLR102 layout
7425 MC74HC4053N
7426 BC848
7427 BC848
7421 BB212
11.2896Hz
7422 (A) LM358
7422 (B) LM358
6420 9V1
7371 FCB61C65L-70T
MTIM
INF
(TO 7488-18) UNLOCK
(FROM 7487-5) LTEN
(FROM 3553) LTDAT
(FROM 3552) LTCLK
(FROM 3551) LTCNT0
(FROM 7487-6) LTCNT1
(FROM 3550) SETSY
(TO 7480-14) DIIRQ
(TO 7488-7) IMSTRT
(FROM 7420-40) SETSY
(FROM 7485-15) SYNCHRO
(FROM 7400-14) MSTCK
(TO 7341-2) MSTCK
(FROM 3521) SSEL
(FROM 7486-15) CERES
(TO 7450-22) MCKN
(FROM 7480-1, 5-11)
(FROM 7483-12) CECS
(FROM 7483-3) CERS
(FROM 7484-8) WR
(FROM 7482-22) RD
(FROM 1502-6) KILL
INPUT LEFT 1301-4
INPUT RIGHT 1301-2
DIG IN 1425-1
GND 1425-2


(XSYS2 NOT USED)
CONN. 1400 TO CONN. 1230 ON DECODER CIRCUIT
7341 MC74HC163
7342 MC74HC163
7344 (B) MC74HC74
7374 74HC175
7375 (A) 74HC00
7375 (B) 74HC00
7375 (C) 74HC00
7375 (D) 74HC00
7343 (A) 74HC04
7343 (B) 74HC04
7343 (C) 74HC04
7373 (A) LM833
7373 (B) LM833
7372 PC74HCT4046A
7400 PC74HC157
7370 CDCE
MTIM
INF
I²X
EFM
SUBCODE
SYSTIM
CIRC
7371 FCB61C65L-70T
SRAM
7422 (A) LM358
7422 (B) LM358
7347 MC7905ACT
EFMCLK
EFM
CESSY
(TO 7450-20)
CEPB
(FROM 7486-12)
(FROM 7480-1, 5-11)
MSTCK
(FROM 7400-14)
SSEL
(FROM 3521)
(TO 7341-2)
15 16 17 18 19 20 21 22 23 24 25 26 27
A B C D E F G H I J K L M N O

1300	B 4	2385	I27	3402	B19
1300	B 4	2386	A23	3403	B20
1300	B 4	2387	B26	3404	B21
1300	B 4	2400	F18	3420	H 8
1300	B 3	2402	B19	3421	H 8
1300	B 3	2403	B20	3422	L 1
1300	B 3	2404	B21	3423	J15
1301	E 1	2404	B22	3424	L17
1301	E 1	2420	H 7	3425	K13
1301	D 1	2421	H 8	3426	K13
1301	C 1	2422	N15	3427	M12
1340	B 5	2423	N16	3428	N12
1340	B 5	2424	N10	3429	N14
1340	B 5	2425	L16	3430	M14
1340	B 5	2426	L17	3431	N14
1400	B18	2427	J15	3432	L15
1400	B18	2428	J15	3433	M10
1400	B19	2429	M12	3434	L16
1400	B20	2430	M14	3435	L 4
1400	B20	2431	K 1	3436	K 2
1400	B20	2432	H 9	3438	L13
1400	B21	2433	K 3	3442	K10
1400	B21	2434	M 1	3443	J14
1400	B22	2435	J14	3444	H12
1400	B22	2436	M 2	3445	H13
1420	K 2	2760	O16	3446	I12
1421	J 3	2761	O14	3447	I14
1422	K 1	2764	O16	3448	K12
1422	K 1	2765	O14	3449	K12
1424	M13	3300	D 1	3774	O15
1425	J 1	3301	F 1	3775	O13
1425	J 1	3302	D 2	4400	H17
1502	M27	3303	F 2	4401	B18
1502	N27	3304	D 2	5340	B 6
1502	N27	3305	E 2	6420	J16
1502	N27	3306	D 2	7300	F 3
1502	N27	3307	E 2	7300	D 3
1502	N27	3308	E 2	7340	C 8
1502	O27	3309	C 2	7341	C15
1502	O27	3340	B 7	7342	C19
1502	O27	3341	B 7	7343	O12
1504	I27	3342	F 5	7343	F13
1504	H27	3343	E 6	7343	D13
2300	D 1	3344	F 6	7343	E23
2301	F 1	3345	C16	7343	D23
2302	C 1	3346	B11	7343	E26
2303	E 1	3347	B10	7344	E15
2304	D 2	3348	C11	7344	D13
2305	F 2	3349	D26	7345	C11
2306	E 4	3350	D14	7346	C10
2307	C 4	3351	D 5	7347	O26
2308	E 4	3352	D 5	7370	I26
2309	C 3	3354	B 6	7371	M21
2340	B 9	3370	H25	7372	H23
2341	D 6	3371	O22	7373	G24
2342	B 8	3372	F23	7373	F24
2343	C 7	3373	F23	7374	D24
2344	C 6	3374	G21	7375	D24
2345	F 7	3375	G20	7375	C25
2346	C 6	3376	G23	7375	B25
2347	C16	3377	F22	7375	C26
2348	C18	3378	E22	7400	H17
2349	D15	3379	G23	7420	I 5
2350	D25	3380	H24	7421	M13
2351	B 9	3381	G25	7422	N16
2352	F 6	3382	G25	7422	K16
2353	B 8	3383	G25	7425	I12
2354	C 6	3385	H27	7426	I12
2355	C 5	3386	I27	7427	I14
2356	E 5	3387	B26		
2357	E 5	3400	F18		
2358	E 6	3401	B22		
2359	F 6				
2360	D 6				
2361	O26				
2370	O22				
2371	O23				
2372	I25				
2373	I25				
2374	F23				
2375	F23				
2376	F21				
2377	F21				
2378	E23				
2379	E24				
2380	H24				
2381	H24				
2382	G26				
2383	G21				
2384	J27				


KILL
MCK
EFM
SSEL
DIIRQ
CERS
WR
RD
CEPB
CERES
IMSTRT
UNLOCK
SETSY
LTEN
LTCNT0
LTCNT1
LTCLK
LTDAT
CECS
MCKN
RESET
OFF
+5
Vb
+15V
-15V
⊥
TO/FROM ENCODER - 1 CIRCUIT

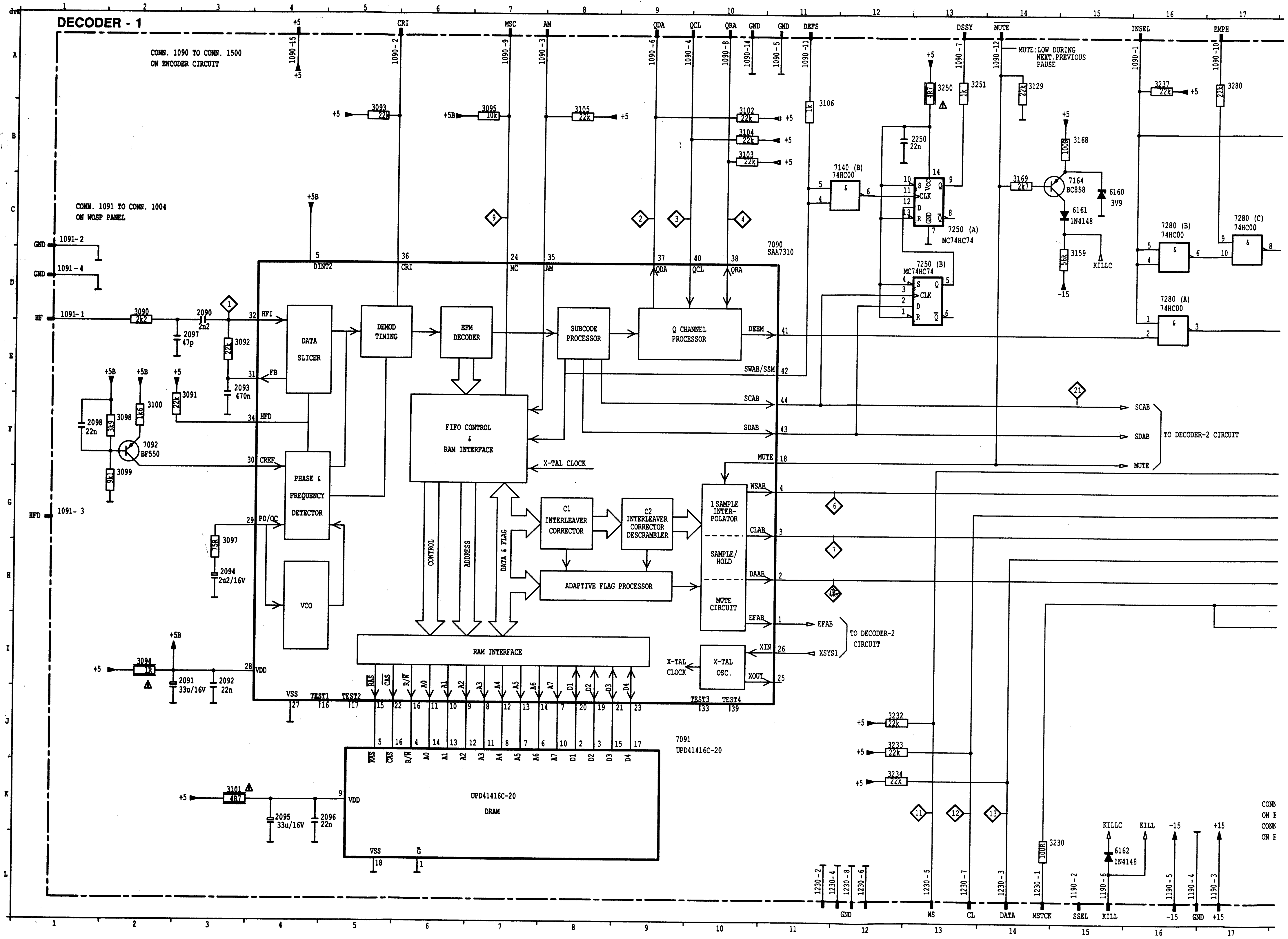
CONN. 1502 TO CONN. P4 ON POWER SUPPLY CIRCUIT
CONN. 1504 TO CONN. 1000 ON WOSP CIRCUIT

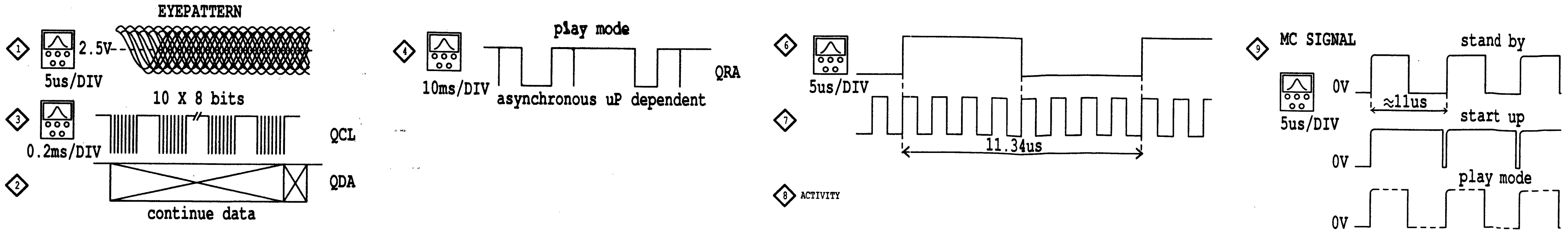
ENCODER-2

A0-10	- RAM Addressbus Bit 0 - 10
ACAL	- Analog Calibrate
ACLKA	- Analog Section Output Clock
ADSDI	- Serial Data Input AD Converter Data
ADSEL	- Serial Date Output Source Selection
AGND	- Analog Ground
AINL	- Left Channel Analog Input
AINR	- Right Channel Analog Input
APD	- Analog Power Down
ASL	- Audio Sample Length
CECS	- CIRC EFM Chip Select
CEFS	- CIRC EFM Frame Sync
CEPB	- CIRC EFM Pause Bit
CERES	- CIRC EFM Reset
CERS	- CIRC EFM Register Select
CESSY	- CIRC EFM Subcode Sync
CK2	- Master Clock /2
CKACO	- Frequency Accuracy Check Output
CKSEL	- Master Clock Frequency Select
CL	- Clock Signal
CLKIN	- Master Clock Input
CS	- Chip Select
D0 - 7	- Databus Bit 0 - 7
DCAL	- Digital Calibrate Output
DCLKA	- Digital Section Clock Input
DGND	- Digital Ground
DIIRQ	- Digital Input Interrupt Request
DPD	- Digital Power Down
EFM	- Eight to Fourteen Modulation
FLAGI	- Error Flag Input
FLAGO	- Error Flag Output
GND	- Ground
HLD	- Hold Signal
IIS	- IS Format Selection
IMSTRT	- Start New Message U bit Indication
IRQU	- Indication Information Message
L	- Left
L/R	- Left/Right Select
LDL	- Level Detection Left
LDR	- Level Detection Right
LEVLH	- Analog Level Left High
LEVLL	- Analog Level Left Low
LEVRH	- Analog Level Right High
LEVRL	- Analog Level Right Low
LGND	- Logic Ground
LLE	- Left Level
LRCKPOL	- Polarity LRCK Select
LTCLK	- Interface Data Bit Clock
LTCNT0-1	- Interface Control
LTDATA	- Interface Databus
LTEN	- Interface Enable
MCK	- Master Clock
MCKN	- Master Clock NOT
MODE0 - 1	- Mode Select
MSBF	- Most Significant Bit First Select
MSTCK	- Master Clock
MUTE	- Mute Control
NFR	- Output Level Convertor RX1
PCH	- Subcode PChannel
PD12	- Phase Detector Outputs
R	- Right
RCH	- Subcode RChannel
RD	- µP Read Signal
RD0 - 7	- RAM Databus Bit 0 - 7
REFCK	- Reference Clock Frequency Accuracy Check
RLE	- Right Level
RS	- Register Select
RST	- Hard Reset
RX1	- IEC Format Digital Audio Data Input (Coaxial Input)
RX2	- IEC Format Digital Audio Data Input (Optical Input)
RXCKIO	- Input/Output VCO Frequency
RXSEL	- Selection RX1 Or RX2
SCH	- Subcode S Channel
SCK	- Serial Clock (IS)
SCK/BCK	- Shift/Bit Clock Audio Data
SCLK	- Serial Output Data Clock
SD/SDI	- Serial Data (Input) Audio Databus
SD0 - 1	- Serial Data (IS)
SDATA	- Serial Data Output
SDO	- Serial Data Output Audio Databus
SETSY	- Settings Sync Signal
SSEL	- Source Select
SSY	- Subcode Sync
T0 - 1	- Test Signal
TCH	- Subcode T Channel
TST1 - 3	- Test inputs
TX	- IEC Format Digital Data Output
TXOE	- Reset
UCH	- Subcode U Channel
UNLOCK	- Indication VCO Frequency
USYNC01	- Indication Start New Frame
VA+	- Positive Analog Power
VA-	- Negative Analog Power
VCH	- Subcode V Channel
VL+	- Positive Logic Power
VREF	- Voltage reference Output
WCH	- Subcode W Channel
WCK	- Word Clock Output
WR	- µP Write Signal
WS	- Word Select Signal
WS/LRCK	- Word Select Audio Data
XSYS	- Oscillator Signal
ZEROL	- Zero Input Level Left Channel
ZEROR	- Zero Level Input Right Channel

DECODER CIRCUIT DIAGRAM

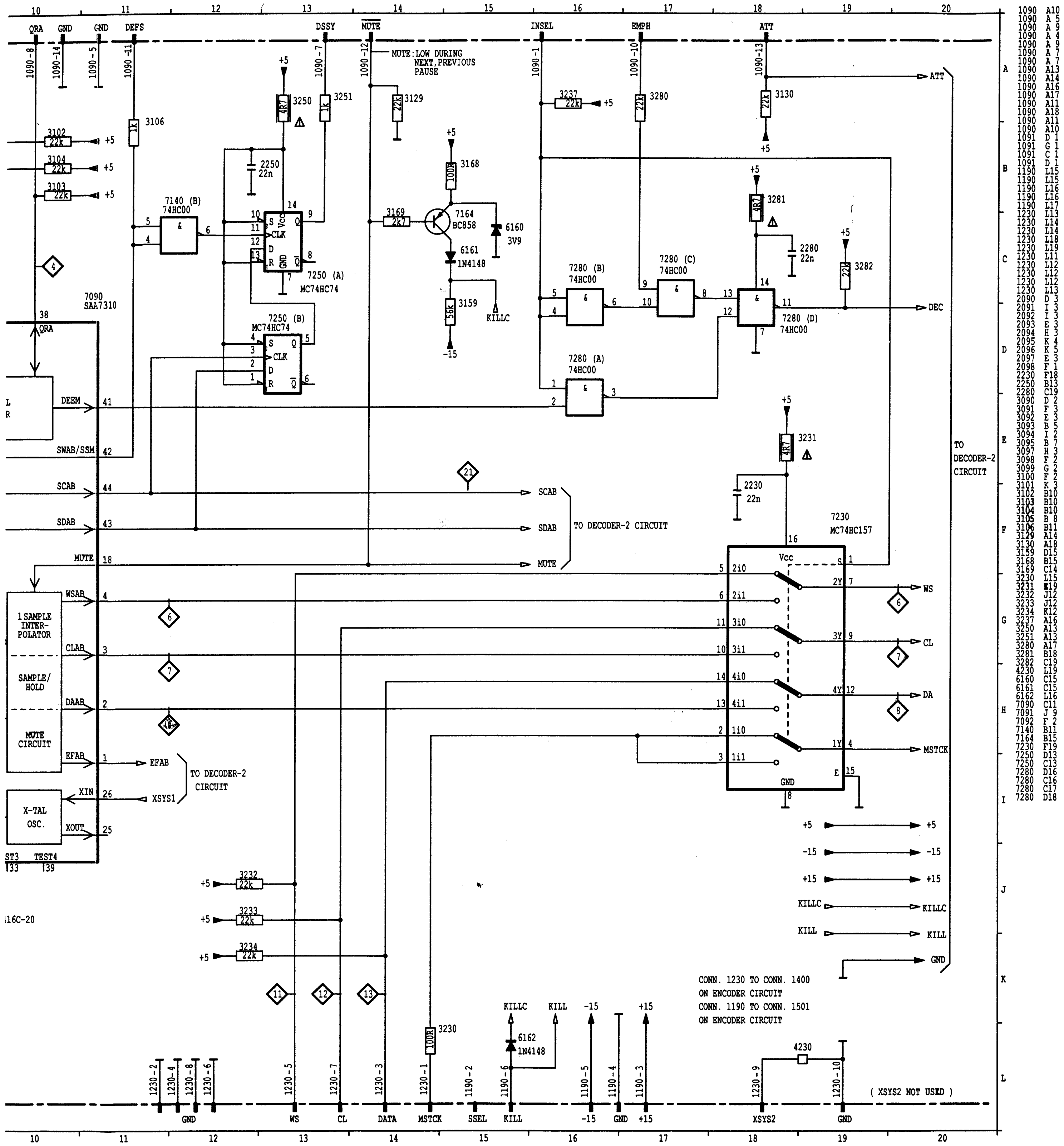
DECODER - 1

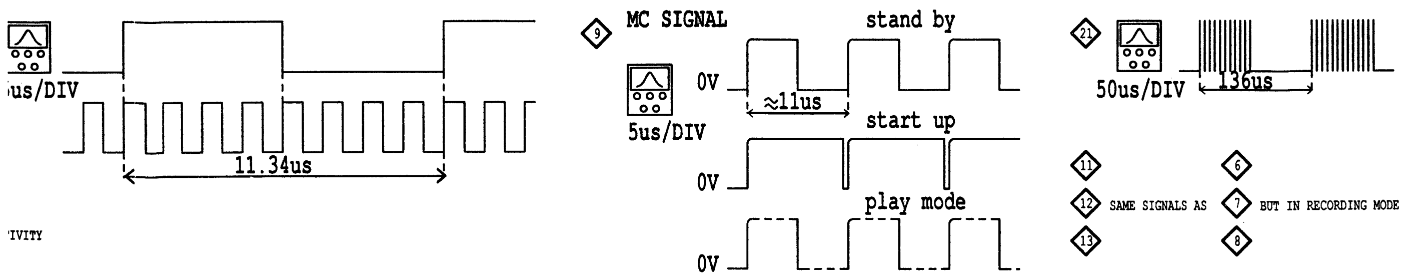

CONN. 1090 TO CONN. 1500
ON ENCODER CIRCUIT
CONN. 1091 TO CONN. 1004
ON WOSP PANEL
CRI
MSC
AM
QDA
QCL
QRA
GND
DEFS
DSSY
MUTE
INSEL
EMPH
MUTE:LOW DURING NEXT, PREVIOUS PAUSE
GND 1091-2
GND 1091-4
HF 1091-1
HFD 1091-3
3090 2k2
2090 2n2
2097 47p
3092 22k
2093 470n
3091 22k
3100 1k5
3098 1k5
2098 22n
7092 BF550
3099 3k3
3097 75k
2094 2u2/16V
3094 1R
2091 33u/16V
2092 22n
3101 4R7
2095 33u/16V
2096 22n
3093 22k
3095 10k
3105 22k
3102 22k
3104 22k
3103 22k
3106 1k
3250 4R7
3251 1k
2250 22n
3129 22k
3237 22k
3280 22k
3168 100R
3169 2k7
7164 BC858
6160 3V9
6161 1N4148
3159 5k6
KILLC
7140 (B) 74HC00
7250 (A) MC74HC74
7250 (B) MC74HC74
7280 (A) 74HC00
7280 (B) 74HC00
7280 (C) 74HC00
7090 SAA7310
DINT2
HFI
FB
HFD
CREF
PD/OC
VDD
VSS
TEST1
TEST2
DATA SLICER
PHASE & FREQUENCY DETECTOR
VCO
DEMOD TIMING
EFM DECODER
SUBCODE PROCESSOR
Q CHANNEL PROCESSOR
FIFO CONTROL & RAM INTERFACE
X-TAL CLOCK
CONTROL
ADDRESS
DATA & FLAG
C1 INTERLEAVER CORRECTOR
C2 INTERLEAVER CORRECTOR DESCRAMBLER
ADAPTIVE FLAG PROCESSOR
1 SAMPLE INTER-POLATOR
SAMPLE/HOLD
MUTE CIRCUIT
X-TAL OSC.
RAM INTERFACE
DEEM
SWAB/SSM
SCAB
SDAB
MUTE
WSAB
CLAB
DAAB
EFAB
XIN
XOUT
TEST3
TEST4
TO DECODER-2 CIRCUIT
EFAB
XSYS1
RAS CAS R/W A0 A1 A2 A3 A4 A5 A6 A7 D1 D2 D3 D4
7091 UPD41416C-20
UPD41416C-20
DRAM
3232 22k
3233 22k
3234 22k
3230 100R
6162 1N4148
KILLC KILL -15 +15
GND
WS
CL
DATA
MSTCK
SSEL
KILL
-15
GND
+15



3104 118 00071R_A

MZ 3091


QRA
GND
DEFS
DSSY
MUTE
INSEL
EMPH
ATT
MUTE:LOW DURING NEXT,PREVIOUS PAUSE
7140 (B) 74HC00
7250 (A) MC74HC74
7250 (B) MC74HC74
7164 BC858
6160 3V9
6161 1N4148
7280 (A) 74HC00
7280 (B) 74HC00
7280 (C) 74HC00
7280 (D) 74HC00
7090 SAA7310
7230 MC74HC157
DEEM
SWAB/SSM
SCAB
SDAB
WSAB
CLAB
DAAB
EFAB
XIN
XOUT
1 SAMPLE INTER-POLATOR
SAMPLE/HOLD
MUTE CIRCUIT
X-TAL OSC.
TO DECODER-2 CIRCUIT
XSYS1
DEC
WS
CL
DA
MSTCK
KILLC
KILL
+5
-15
+15
GND
CONN. 1230 TO CONN. 1400 ON ENCODER CIRCUIT
CONN. 1190 TO CONN. 1501 ON ENCODER CIRCUIT
6162 1N4148
4230
(XSYS2 NOT USED)
DATA
SSEL
XSYS2



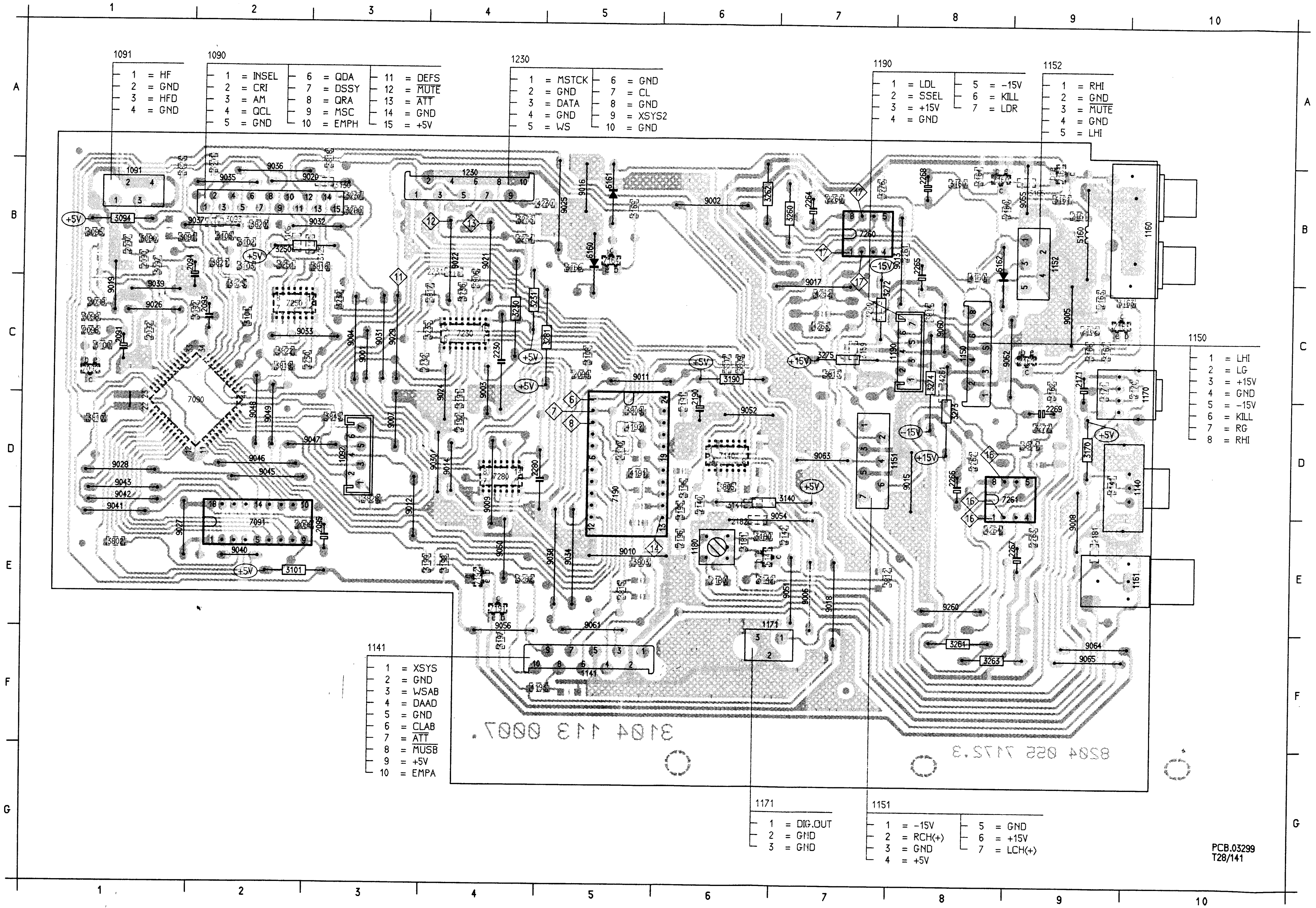
3104 118 00071S_A
9141

DECODER-1

AM	- Additional Mute
ATT	- Attenuation
CL	- Clock Signal
CLAB	- Clock Signal Decoder-A to Filter-B
CREF	- Reference Current
CRI	- Counter Reset Inhibit
DA	- Data Signal
DAAB	- Data Signal Decoder-A to Filter-B
DEC	- Deemphasis Control
DEEM	- Deemphasis
DSSY	- Decoder Subcode Sync
EFAB	- Error Flag Decoder-A to Filter-B
FB	- Feed Back
GND	- Ground
HF	- High Frequency
HFD	- High Frequency Detection
HFI	- High Frequency Input
INSEL	- Input Selector
MC	- Motor Control Signal
MSC	- External Motor Control Input
MSTCK	- Master Clock
MUTE	- Mute Signal
PD/OC	- Phase Detector - Oscillator Control
QCL	- Q-Channel Clock Signal
QDA	- Q-Channel Data Signal
QRA	- Q-Channel Request Acknowledge
SCAB	- Subcode Clock Decoder-A to Filter-B
SDAB	- Subcode Data Decoder-A to Filter-B
SWAB/SSM	- Subcode Word/Start-Stop Motor Signal
WS	- Word Select
WSAB	- Word Select Decoder-A to Filter-B
XIN	- Oscillator Signal in Decoder-A
XOUT	- Oscillator Signal out Decoder-A
XSYS	- Oscillator Signal

DECODER PANEL COMPONENT SIDE

1091	B1
1092	D3
1140	D10
1141	F5
1150	C8
1151	D8
1152	B9
1160	B10
1161	E10
1170	D10
1171	E6
1180	E6
1190	C8
1230	B4
2090	B1
2091	C1
2092	C1
2093	C2
2094	B2
2095	E3
2096	E2
2097	B1
2098	C1
2099	C5
2140	E6
2142	E7
2160	B8
2161	B9
2162	C9
2163	C9
2170	C10
2171	C9
2180	E6
2181	E9
2182	E6
2190	D6
2191	D6
2192	D4
2196	E6
2230	C4
2231	B4
2232	C4
2250	C3
2260	B7
2261	B8
2262	D8
2263	E9
2264	B7
2265	B8
2266	D8
2267	E9
2268	B8
2269	D9
2280	D4
3090	B1
3091	B1
3092	C2
3093	B2
3094	B1
3095	B1
3097	B1
3098	C1
3099	C1
3100	C1
3101	E2
3102	B2
3103	B2
3104	C2
3105	B2
3106	B2
3108	C5
3129	B3
3130	B3
3140	D7
3141	D9
3142	E6
3144	D6
3159	C7
3160	B8
3161	B9
3162	D9
3163	C9
3164	B8
3165	B9
3166	C9
3167	C9
3168	B5
3169	B5
3170	D9
3171	D9
3180	E6
3181	E6
3190	C6
3191	D4
3195	E6
3196	D6
3197	F4
3198	E4
3199	E4
3230	C4
3231	C4
3232	C3
3233	B4
3234	B4
3235	C4
3236	C4
3237	B3
3250	B2
3251	B2
3260	B7
3261	F8
3262	B6
3263	F8
3272	C7
3273	D8
3274	C8
3275	C7
3276	B7
3277	D9
3280	B3
3281	C5
3282	E4
3801	B2
3802	E1
3803	E5
3804	D9
3805	D6
3806	C4
3807	C6
3808	D5
3809	C6
3810	D1
3812	E8
3813	C7
3814	C8
3815	E5
3816	B3
3817	C4
3818	B3
3819	C2
3820	B2
3821	B2
3822	C2
3823	B1
3825	C2
3828	D3
3845	D3
4160	B8
4190	D5
4191	D5
4192	D5
4193	F4
4230	B4
4260	C7
4261	C8
4262	C7
4263	C7
4264	E8
5160	B9
6141	E6
6160	B5
6161	B5
6162	B8
7090	D1
7091	E2
7092	C1
7140	D6
7160	B8
7161	B9
7162	C9
7163	C9
7164	B5
7190	D5
7191	E4
7192	E4
7230	C4
7250	C2
7260	B7
7261	D8
7280	D4
9001	C3
9002	B6
9003	D4
9004	C3
9005	C9
9006	E7
9007	D3
9008	E9
9009	E4
9010	E5
9011	C5
9012	E3
9013	B8
9014	D4
9015	D8
9016	B5
9017	C7
9018	E7
9019	C1
9020	B2
9021	B4
9022	B4
9024	D4
9025	B5
9026	C1
9027	E1
9028	D1
9029	C3
9030	D4
9031	C3
9032	B2
9033	C2
9034	E5
9035	B2
9036	B2
9037	B1
9038	E5
9039	C1
9040	E2
9041	E1
9042	D1
9043	D1
9045	D2
9046	D2
9047	D2
9048	D2
9049	D2
9050	E4
9051	E7
9052	D6
9054	E6
9055	B9
9056	E4
9060	C8
9061	E5
9062	C9
9063	D7
9064	F9
9065	F9
9260	E8



1091
- 1 = HF
- 2 = GND
- 3 = HFD
- 4 = GND

1090
- 1 = INSEL
- 2 = CRI
- 3 = AM
- 4 = QCL
- 5 = GND
- 6 = QDA
- 7 = DSSY
- 8 = QRA
- 9 = MSC
- 10 = EMPH
- 11 = DEFS
- 12 = $\overline{\text{MUTE}}$
- 13 = $\overline{\text{ATT}}$
- 14 = GND
- 15 = +5V

1230
- 1 = MSTCK
- 2 = GND
- 3 = DATA
- 4 = GND
- 5 = WS
- 6 = GND
- 7 = CL
- 8 = GND
- 9 = XSYS2
- 10 = GND

1190
- 1 = LDL
- 2 = SSEL
- 3 = +15V
- 4 = GND
- 5 = −15V
- 6 = KILL
- 7 = LDR

1152
- 1 = RHI
- 2 = GND
- 3 = $\overline{\text{MUTE}}$
- 4 = GND
- 5 = LHI

1150
- 1 = LHI
- 2 = LG
- 3 = +15V
- 4 = GND
- 5 = −15V
- 6 = KILL
- 7 = RG
- 8 = RHI

1141
- 1 = XSYS
- 2 = GND
- 3 = WSAB
- 4 = DAAD
- 5 = GND
- 6 = CLAB
- 7 = $\overline{\text{ATT}}$
- 8 = MUSB
- 9 = +5V
- 10 = EMPA

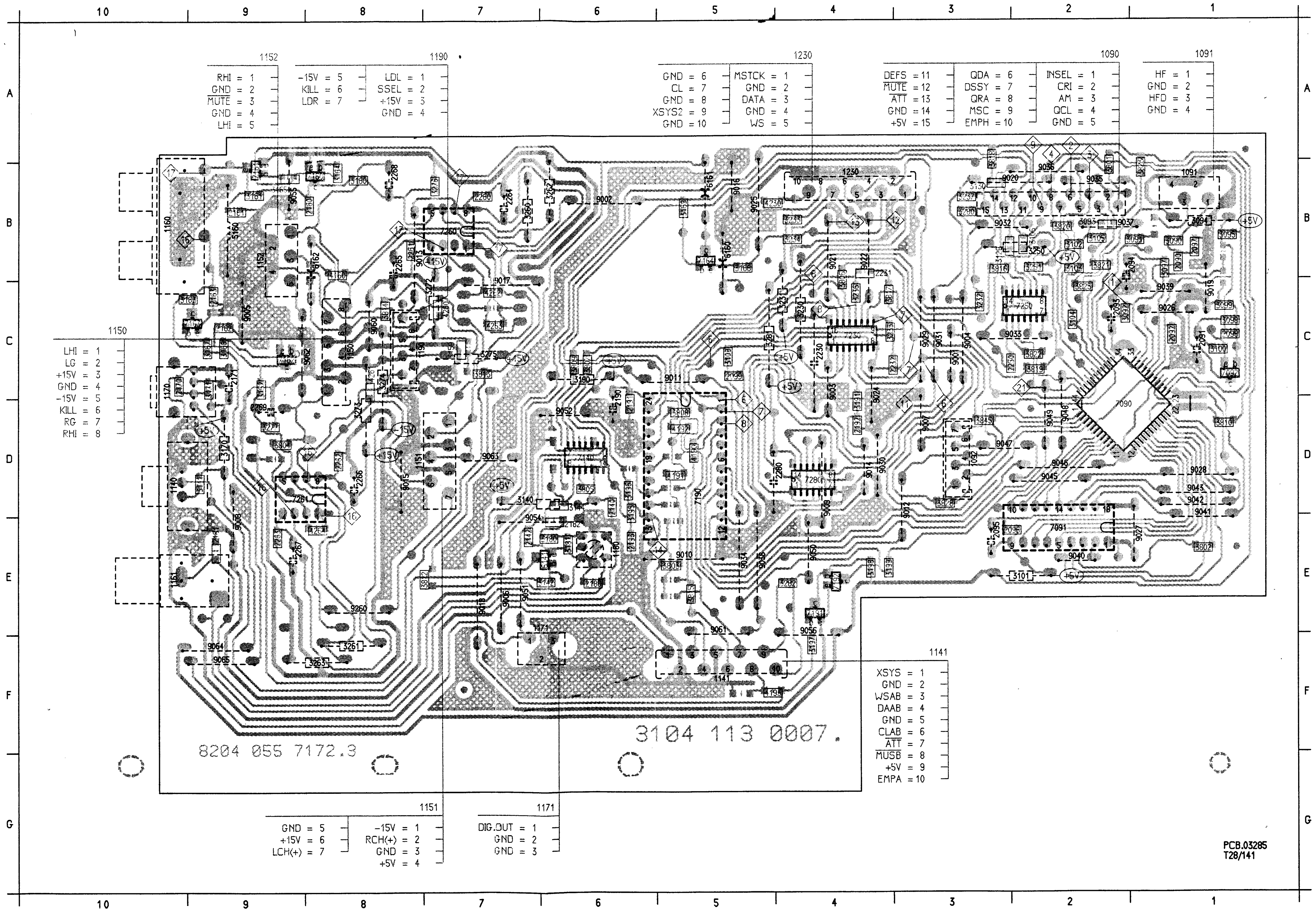
1171
- 1 = DIG.OUT
- 2 = GND
- 3 = GND

1151
- 1 = −15V
- 2 = RCH(+)
- 3 = GND
- 4 = +5V
- 5 = GND
- 6 = +15V
- 7 = LCH(+)

PCB.03299
T28/141

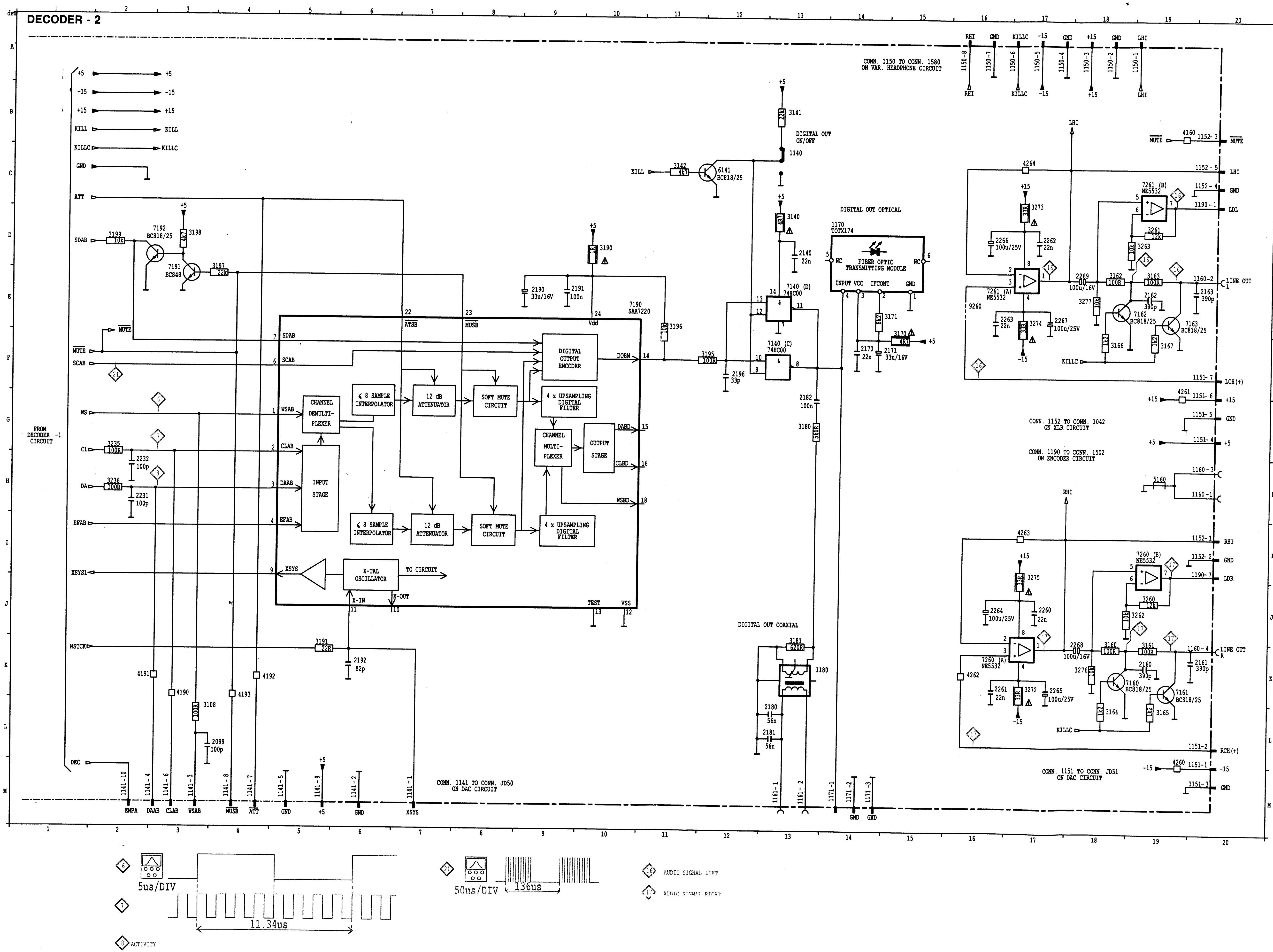
DECODER PANEL SOLDER SIDE

1091	B1
1092	D3
1140	D10
1141	F5
1150	C8
1151	D8
1152	B9
1160	B10
1161	E10
1170	D10
1171	E6
1180	E6
1190	C8
1230	B4
2090	B1
2091	C1
2092	C1
2093	C2
2094	B2
2095	E3
2096	E2
2097	B1
2098	C1
2099	C5
2140	E6
2142	E7
2160	B8
2161	B9
2162	C9
2163	C9
2170	C10
2171	C9
2180	E6
2181	E9
2182	E6
2190	D6
2191	D6
2192	D4
2196	E6
2230	C4
2231	B4
2232	C4
2250	C3
2260	B7
2261	B8
2262	D8
2263	E9
2264	B7
2265	B8
2266	D8
2267	E9
2268	B8
2269	D9
2280	D4
3090	B1
3091	B1
3092	C2
3093	B2
3094	B1
3095	B1
3097	B1
3098	C1
3099	C1
3100	C1
3101	E2
3102	B2
3103	B2
3104	C2
3105	B2
3106	B2
3108	C5
3129	B3
3130	B3
3140	D7
3141	D9
3142	E6
3144	D6
3159	C7
3160	B8
3161	B9
3162	D9
3163	C9
3164	B8
3165	B9
3166	C9
3167	C9
3168	B5
3169	B5
3170	D9
3171	D9
3180	E6
3181	E6
3190	C6
3191	D4
3195	E6
3196	D6
3197	F4
3198	E4
3199	E4
3230	C4
3231	C4
3232	C3
3233	B4
3234	B4
3235	C4
3236	C4
3237	B3
3250	B2
3251	B2
3260	B7
3261	F8
3262	B6
3263	F8
3272	C7
3273	D8
3274	C8
3275	C7
3276	B7
3277	D9
3280	B3
3281	C5
3282	E4
3801	B2
3802	E1
3803	E5
3804	D9
3805	D6
3806	C4
3807	C6
3808	D5
3809	C6
3810	D1
3812	E8
3813	C7
3814	C8
3815	E5
3816	B3
3817	C4
3818	B3
3819	C2
3820	B2
3821	B2
3822	C2
3823	B1
3825	C2
3828	D3
3845	D3
4160	B8
4190	D5
4191	D5
4192	D5
4193	F4
4230	B4
4260	C7
4261	C8
4262	C7
4263	C7
4264	E8
5160	B9
6141	E6
6160	B5
6161	B5
6162	B8
7090	D1
7091	E2
7092	C1
7140	D6
7160	B8
7161	B9
7162	C9
7163	C9
7164	B5
7190	D5
7191	E4
7192	E4
7230	C4
7250	C2
7260	B7
7261	D8
7280	D4
9001	C3
9002	B6
9003	D4
9004	C3
9005	C9
9006	E7
9007	D3
9008	E9
9009	E4
9010	E5
9011	C5
9012	E3
9013	B8
9014	D4
9015	D8
9016	B5
9017	C7
9018	E7
9019	C1
9020	B2
9021	B4
9022	B4
9024	D4
9025	B5
9026	C1
9027	E1
9028	D1
9029	C3
9030	D4
9031	C3
9032	B2
9033	C2
9034	E5
9035	B2
9036	B2
9037	B1
9038	E5
9039	C1
9040	E2
9041	E1
9042	D1
9043	D1
9045	D2
9046	D2
9047	D2
9048	D2
9049	D2
9050	E4
9051	E7
9052	D6
9054	E6
9055	B9
9056	E4
9060	C8
9061	E5
9062	C9
9063	D7
9064	F9
9065	F9
9260	E8

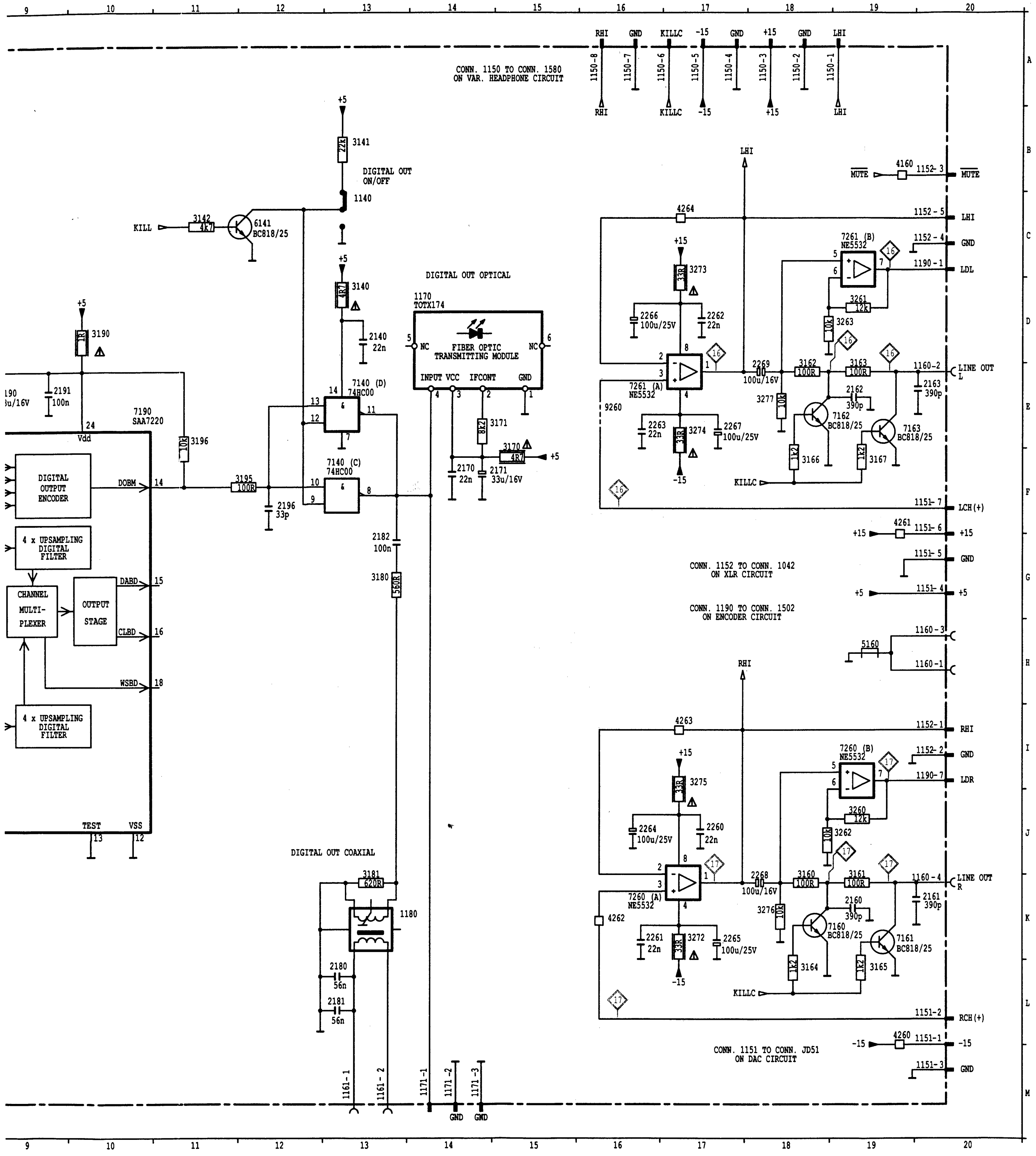

10
9
8
7
6
5
4
3
2
1
A
B
C
D
E
F
G
1152
RHI = 1
GND = 2
MUTE = 3
GND = 4
LHI = 5
1190
-15V = 5
KILL = 6
LDR = 7
LDL = 1
SSEL = 2
+15V = 3
GND = 4
1230
GND = 6
CL = 7
GND = 8
XSYS2 = 9
GND = 10
MSTCK = 1
GND = 2
DATA = 3
GND = 4
WS = 5
1090
DEFS = 11
MUTE = 12
ATT = 13
GND = 14
+5V = 15
QDA = 6
DSSY = 7
QRA = 8
MSC = 9
EMPH = 10
INSEL = 1
CRI = 2
AM = 3
QCL = 4
GND = 5
1091
HF = 1
GND = 2
HFD = 3
GND = 4
1150
LHI = 1
LG = 2
+15V = 3
GND = 4
-15V = 5
KILL = 6
RG = 7
RHI = 8
1141
XSYS = 1
GND = 2
WSAB = 3
DAAB = 4
GND = 5
CLAB = 6
ATT = 7
MUSB = 8
+5V = 9
EMPA = 10
1151
GND = 5
+15V = 6
LCH(+) = 7
-15V = 1
RCH(+) = 2
GND = 3
+5V = 4
1171
DIG.OUT = 1
GND = 2
GND = 3
8204 055 7172.3
3104 113 0007.
PCB.03285
T28/141

DECODER CIRCUIT DIAGRAM

DECODER - 2


+5
-15
+15
KILL
KILLC
GND
ATT
SDAB
3199 10k
7192 BC818/25
3198 4k7
7191 BC848
3197 22k
MUTE
SCAB
WS
CL
3235 100R
2232 100p
DA
3236 100R
2231 100p
EFAB
XSYS1
MSTCK
DEC
FROM DECODER -1 CIRCUIT
7190 SAA7220
SDAB
SCAB
WSAB
CLAB
DAAB
EFAB
XSYS
ATSB
MUSB
Vdd
CHANNEL DEMULTI-PLEXER
INPUT STAGE
≤ 8 SAMPLE INTERPOLATOR
12 dB ATTENUATOR
SOFT MUTE CIRCUIT
DIGITAL OUTPUT ENCODER
4 x UPSAMPLING DIGITAL FILTER
CHANNEL MULTI-PLEXER
OUTPUT STAGE
DOBM
DABD
CLBD
WSBD
X-TAL OSCILLATOR
TO CIRCUIT
X-IN
X-OUT
TEST
VSS
2190 33u/16V
2191 100n
3190 1R
3196 10R
3191 22R
2192 82p
4191
4190
3108 100R
2099 100p
4193
4192
1141-10
1141-4
1141-6
1141-3
1141-8
1141-7
1141-5
1141-9
1141-2
1141-1
EMPA
DAAB
CLAB
WSAB
MUSB
ATT
GND
XSYS
CONN. 1141 TO CONN. JD50 ON DAC CIRCUIT
KILL
3142 4k7
6141 BC818/25
3141 22k
DIGITAL OUT ON/OFF
1140
3140 4R7
2140 22n
7140 (D) 74HC00
7140 (C) 74HC00
3195 100R
2196 33p
2182 100n
3180 560R
DIGITAL OUT OPTICAL
1170 TOTX174
FIBER OPTIC TRANSMITTING MODULE
NC
INPUT VCC
IFCONT
GND
3171 8R2
3170 4R7
2170 22n
2171 33u/16V
DIGITAL OUT COAXIAL
3181 620R
1180
2180 56n
2181 56n
1161-1
1161-2
1171-1
1171-2
1171-3
RHI
GND
KILLC
LHI
1150-8
1150-7
1150-6
1150-5
1150-4
1150-3
1150-2
1150-1
CONN. 1150 TO CONN. 1580 ON VAR. HEADPHONE CIRCUIT
4160
1152-3
4264
1152-5
1152-4
1190-1
LDL
3273 33R
2266 100u/25V
2262 22n
7261 (B) NE5532
3261 12k
3263 10R
7261 (A) NE5532
9260
2269 100u/16V
3162 100R
3163 100R
1160-2
LINE OUT L
2163 390p
2162 390p
7162 BC818/25
7163 BC818/25
3277 10R
2263 22n
3274 33R
2267 100u/25V
3166 1k2
3167 1k2
1151-7
LCH(+)
4261
1151-6
1151-5
1151-4
CONN. 1152 TO CONN. 1042 ON XLR CIRCUIT
CONN. 1190 TO CONN. 1502 ON ENCODER CIRCUIT
5160
1160-3
1160-1
RHI
4263
1152-1
1152-2
7260 (B) NE5532
3275 33R
2264 100u/25V
2260 22n
3260 12k
3262 10R
1190-7
LDR
7260 (A) NE5532
4262
2268 100u/16V
3160 100R
3161 100R
1160-4
LINE OUT R
2161 390p
2160 390p
3276 10R
7160 BC818/25
7161 BC818/25
2261 22n
3272 33R
2265 100u/25V
3164 1k2
3165 1k2
1151-2
RCH(+)
4260
1151-1
1151-3
CONN. 1151 TO CONN. JD51 ON DAC CIRCUIT
5us/DIV
11.34us
50us/DIV
136us
AUDIO SIGNAL LEFT
AUDIO SIGNAL RIGHT
ACTIVITY

1140	C13
1141	M 2
1141	M 3
1141	M 3
1141	M 3
1141	M 4
1141	M 4
1141	M 5
1141	M 5
1141	M 6
1141	M 7
1150	A18
1150	A18
1150	A19
1150	A16
1150	A16
1150	A17
1150	A17
1150	A17
1151	F19
1151	G19
1151	F19
1151	L20
1151	L20
1151	M20
1151	G20
1152	C19
1152	C19
1152	B20
1152	I20
1152	I20
1160	K19
1160	E19
1160	H20
1160	H20
1161	M13
1161	M13
1170	D14
1171	M14
1171	M14
1171	M14
1180	K13
1190	C19
1190	I20
2099	L 4
2140	D13
2141	L 7
2160	K19
2161	K20
2162	E19
2163	E20
2170	F14
2171	F15
2180	L13
2181	L13
2182	G13
2190	E 9
2191	E 9
2192	K 6
2196	F12
2231	H 2
2232	H 2
2260	J17
2261	K16
2262	D17
2263	E16
2264	J16
2265	K17
2266	D16
2267	E17
2268	K18
2269	E18
3108	L 4
3140	D13
3141	B13
3142	C11
3143	L 7
3160	K18
3161	K19
3162	E18
3163	E19
3164	L18
3165	L19
3166	F18
3167	F19
3170	F15
3171	E15
3180	G13
3181	K13
3190	D10
3191	K 5
3195	F12
3196	E11
3197	E 4
3198	D 3
3199	D 2
3235	G 2
3236	H 2
3260	J19
3261	D19
3262	J19
3263	D19
3272	K17
3273	C17
3274	E17
3275	I17
3276	K18
3277	E18
4160	B19
4190	K 3
4191	K 2
4192	K 4
4193	K 4
4260	L19
4261	F19
4262	K16
4263	I17
4264	C17
5160	H19
6141	C12
7140	J 6
7140	F13
7140	E13
7160	K18
7161	K19
7162	E19
7163	E19
7190	E10
7191	E 3
7192	D 3
7260	I19
7260	K16
7261	C19
7261	E16
9260	E16


CONN. 1150 TO CONN. 1580 ON VAR. HEADPHONE CIRCUIT
RHI
GND
KILLC
-15
GND
+15
GND
LHI
DIGITAL OUT ON/OFF
1140
KILL
6141 BC818/25
DIGITAL OUT OPTICAL
1170 TOTX174
FIBER OPTIC TRANSMITTING MODULE
INPUT VCC IFCONT GND
7140 (D) 74HC00
7140 (C) 74HC00
7190 SAA7220
DIGITAL OUTPUT ENCODER
DOBM
4 x UPSAMPLING DIGITAL FILTER
CHANNEL MULTI-PLEXER
OUTPUT STAGE
DABD
CLBD
WSBD
TEST
VSS
Vdd
DIGITAL OUT COAXIAL
1180
7261 (A) NE5532
7261 (B) NE5532
7162 BC818/25
7163 BC818/25
7260 (A) NE5532
7260 (B) NE5532
7160 BC818/25
7161 BC818/25
MUTE
LHI
GND
LDL
LINE OUT L
LCH(+)
+15
GND
+5
CONN. 1152 TO CONN. 1042 ON XLR CIRCUIT
CONN. 1190 TO CONN. 1502 ON ENCODER CIRCUIT
RHI
GND
LDR
LINE OUT R
RCH(+)
-15
GND
CONN. 1151 TO CONN. JD51 ON DAC CIRCUIT
KILLC
9260

1140	C13
1141	M 2
1141	M 3
1141	M 3
1141	M 3
1141	M 4
1141	M 4
1141	M 5
1141	M 5
1141	M 6
1141	M 7
1150	A18
1150	A18
1150	A19
1150	A16
1150	A16
1150	A17
1150	A17
1150	A17
1151	F19
1151	G19
1151	F19
1151	L20
1151	L20
1151	M20
1151	G20
1152	C19
1152	C19
1152	B20
1152	I20
1152	I20
1160	K19
1160	E19
1160	H20
1160	H20
1161	M13
1161	M13
1170	D14
1171	M14
1171	M14
1171	M14
1180	K13
1190	C19
1190	I20
2099	L 4
2140	D13
2141	L 7
2160	K19
2161	K20
2162	E19
2163	E20
2170	F14
2171	F15
2180	L13
2181	L13
2182	G13
2190	E 9
2191	E 9
2192	K 6
2196	F12
2231	H 2
2232	H 2
2260	J17
2261	K16
2262	D17
2263	E16
2264	J16
2265	K17
2266	D16
2267	E17
2268	K18
2269	E18
3108	L 4
3140	D13
3141	B13
3142	C11
3143	L 7
3160	K18
3161	K19
3162	E18
3163	E19
3164	L18
3165	L19
3166	F18
3167	F19
3170	F15
3171	E15
3180	G13
3181	K13
3190	D10
3191	K 5
3195	F12
3196	E11
3197	E 4
3198	D 3
3199	D 2
3235	G 2
3236	H 2
3260	J19
3261	D19
3262	J19
3263	D19
3272	K17
3273	C17
3274	E17
3275	I17
3276	K18
3277	E18
4160	B19
4190	K 3
4191	K 2
4192	K 4
4193	K 4
4260	L19
4261	F19
4262	K16
4263	I17
4264	C17
5160	H19
6141	C12
7140	J 6
7140	F13
7140	E13
7160	K18
7161	K19
7162	E19
7163	E19
7190	E10
7191	E 3
7192	D 3
7260	I19
7260	K16
7261	C19
7261	E16
9260	E16

⟨16⟩ AUDIO SIGNAL LEFT

⟨17⟩ AUDIO SIGNAL RIGHT

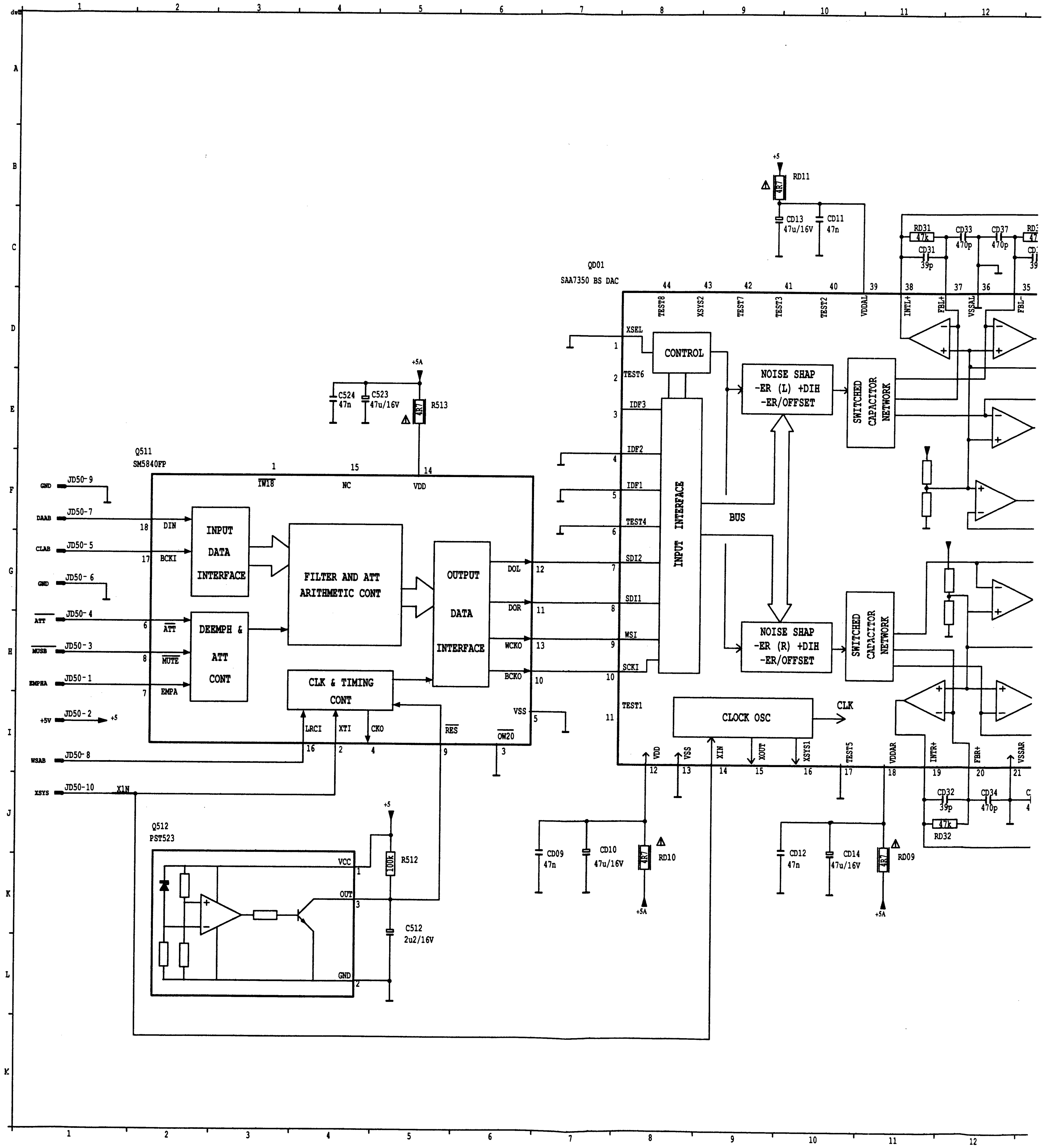
3104 118 00071 S-B
9141

DECODER-2

ATSB	- Attenuation of Audio Level in Search Position
ATT	- Attenuation
CL	- Clock Signal
CLAB	- Clock Signal Decoder-A to Filter-B
CLBD	- Clock Signal Filter-B to DAC
DA	- Data Signal
DAAB	- Data Signal Decoder-A to Filter-B
DABD	- Data Signal Filter-B to DAC
DEC	- Deemphasis Control
DOBM	- Digital Out Signal
EFAB	- Error Flag Decoder-A to Filter-B
MUSB	- Soft Mute Signal
SCAB	- Subcode Clock Decoder-A to Filter-B
SDAB	- Subcode Data Decoder-A to Filter-B
WS	- Word Select
WSAB	- Word Select Decoder-A to Filter-B
WSBD	- Word Select Filter-B to DAC
X-IN	- Oscillator Signal in Decoder-A
X-OUT	- Oscillator Signal out Decoder-A
XSYS	- Oscillator Signal

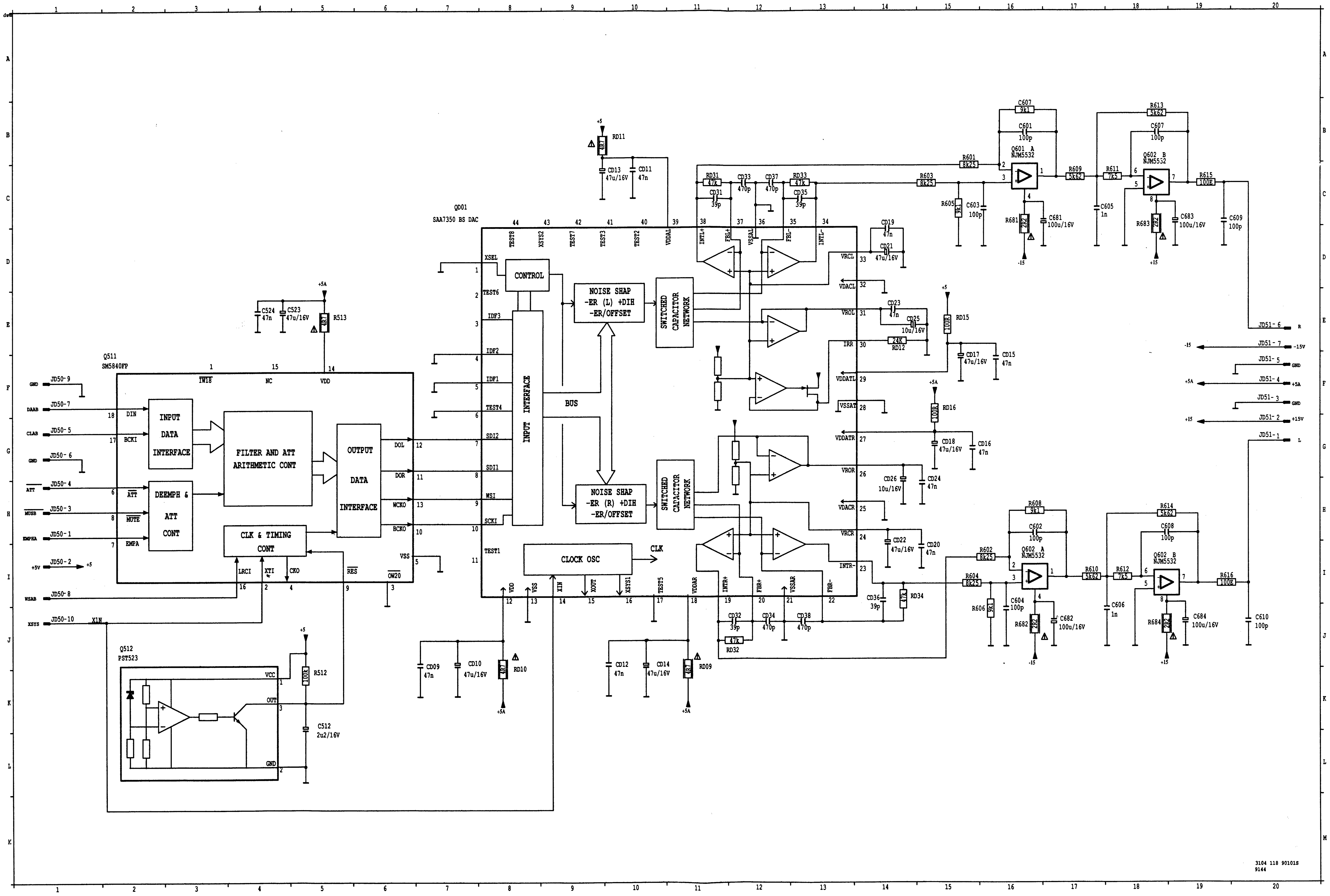
BS DAC CIRCUIT DIAGRAM

C512	K 5
C523	E 5
C524	E 4
C601	B16
C602	H16
C603	C15
C604	I16
C605	C18
C606	J18
C607	B16
C607	B18
C608	H19
C609	C20
C610	J20
C681	C17
C682	J17
C683	C19
C684	J19
CD09	J 7
CD10	J 7
CD11	C10
CD12	J10
CD13	C10
CD14	J10
CD15	F16
CD16	G16
CD17	F15
CD18	G15
CD19	C14
CD20	I15
CD21	D14
CD22	I14
CD23	E14
CD24	H15
CD25	E14
CD26	H14
CD31	C11
CD32	J12
CD33	C12
CD34	J12
CD35	C13
CD36	I14
CD37	C12
CD38	J13
JD50	I 1
JD50	J 1
JD50	H 1
JD50	G 1
JD50	F 1
JD50	F 1
JD50	H 1
JD50	H 1
JD50	I 1
JD50	G 1
JD51	F20
JD51	E20
JD51	F20
JD51	E20
JD51	G20
JD51	G20
JD51	F20
Q511	F 2
Q512	J 2
Q601	B16
Q602	I16
Q602	B18
Q602	I18
QD01	C 7
R512	K 5
R513	E 5
R601	B15
R602	I16
R603	C15
R604	I15
R605	C15
R606	J15
R60	
R60	
R61	
R61	


1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
I
J
K
L
K
+5
RD11
4R7
CD13
47u/16V
CD11
47n
RD31
47k
CD33
470p
CD37
470p
CD31
39p
QD01
SAA7350 BS DAC
44
43
42
41
40
39
38
37
36
35
TEST8
XSYS2
TEST7
TEST3
TEST2
VDDAL
INTL+
FBL+
VSSAL
FBL-
XSEL
TEST6
IDF3
IDF2
IDF1
TEST4
SDI2
SDI1
WSI
SCKI
TEST1
CONTROL
INPUT INTERFACE
BUS
NOISE SHAP
-ER (L) +DIH
-ER/OFFSET
NOISE SHAP
-ER (R) +DIH
-ER/OFFSET
SWITCHED CAPACITOR NETWORK
SWITCHED CAPACITOR NETWORK
CLOCK OSC
CLK
VDD
VSS
XIN
XOUT
XSYS1
TEST5
VDDAR
INTR+
FBR+
VSSAR
12
13
14
15
16
17
18
19
20
21
CD32
39p
CD34
470p
47k
RD32
+5A
C524
47n
C523
47u/16V
4R7
R513
Q511
SM5840FP
IW18
NC
VDD
GND
JD50-9
DAAB
JD50-7
CLAB
JD50-5
GND
JD50-6
ATT
JD50-4
MUSB
JD50-3
EMPHA
JD50-1
+5V
JD50-2
+5
WSAB
JD50-8
XSYS
JD50-10
X1N
DIN
BCKI
ATT
MUTE
EMPA
INPUT DATA INTERFACE
DEEMPH & ATT CONT
FILTER AND ATT ARITHMETIC CONT
OUTPUT DATA INTERFACE
CLK & TIMING CONT
LRCI
XTI
CKO
RES
OW20
DOL
DOR
WCKO
BCKO
VSS
Q512
PST523
VCC
OUT
GND
100k
R512
C512
2u2/16V
CD09
47n
CD10
47u/16V
4R7
RD10
CD12
47n
CD14
47u/16V
4R7
RD09

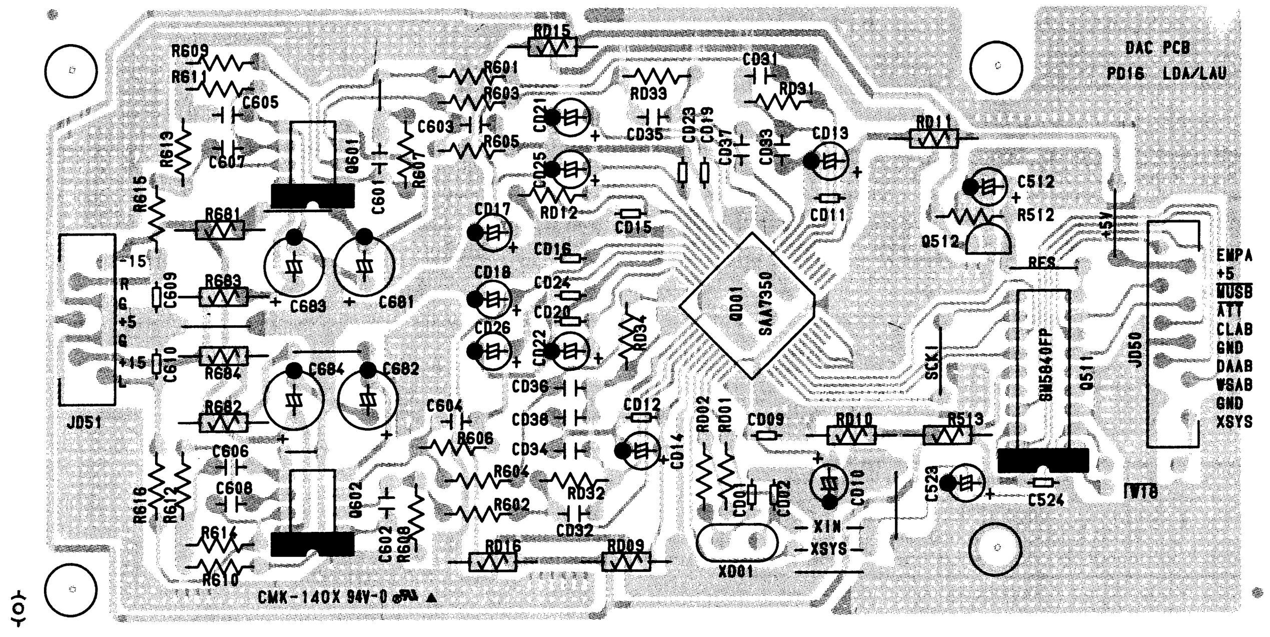
BS DAC CIRCUIT DIAGRAM

C512	K 5
C523	E 5
C524	E 4
C601	B16
C602	H16
C603	C15
C604	I16
C605	C18
C606	J18
C607	B16
C607	B18
C608	H19
C609	C20
C610	J20
C681	C17
C682	J17
C683	C19
C684	J19
CD09	J 7
CD10	J 7
CD11	C10
CD12	J10
CD13	C10
CD14	J10
CD15	F16
CD16	G16
CD17	F15
CD18	G15
CD19	C14
CD20	I15
CD21	D14
CD22	I14
CD23	E14
CD24	H15
CD25	E14
CD26	H14
CD31	C11
CD32	J12
CD33	C12
CD34	J12
CD35	C13
CD36	I14
CD37	C12
CD38	J13
JD50	I 1
JD50	J 1
JD50	H 1
JD50	G 1
JD50	F 1
JD50	F 1
JD50	H 1
JD50	H 1
JD50	I 1
JD50	G 1
JD51	F20
JD51	E20
JD51	F20
JD51	E20
JD51	G20
JD51	G20
JD51	F20
Q511	F 2
Q512	J 2
Q601	B16
Q602	I16
Q602	B18
Q602	I18
QD01	C 7
R512	K 5
R513	E 5
R601	B15
R602	I16
R603	C15
R604	I15
R605	C15
R606	J15
R608	H16
R609	C17
R610	I17
R611	C18
R612	I18
R613	B18
R614	H18
R615	C19
R616	I19
R681	C16
R682	J16
R683	D18
R684	J18
RD09	K11
RD10	K 8
RD11	B10
RD12	E14
RD15	E15
RD16	F15
RD31	C11
RD32	J12
RD33	C13
RD34	I15
X1N	J 1

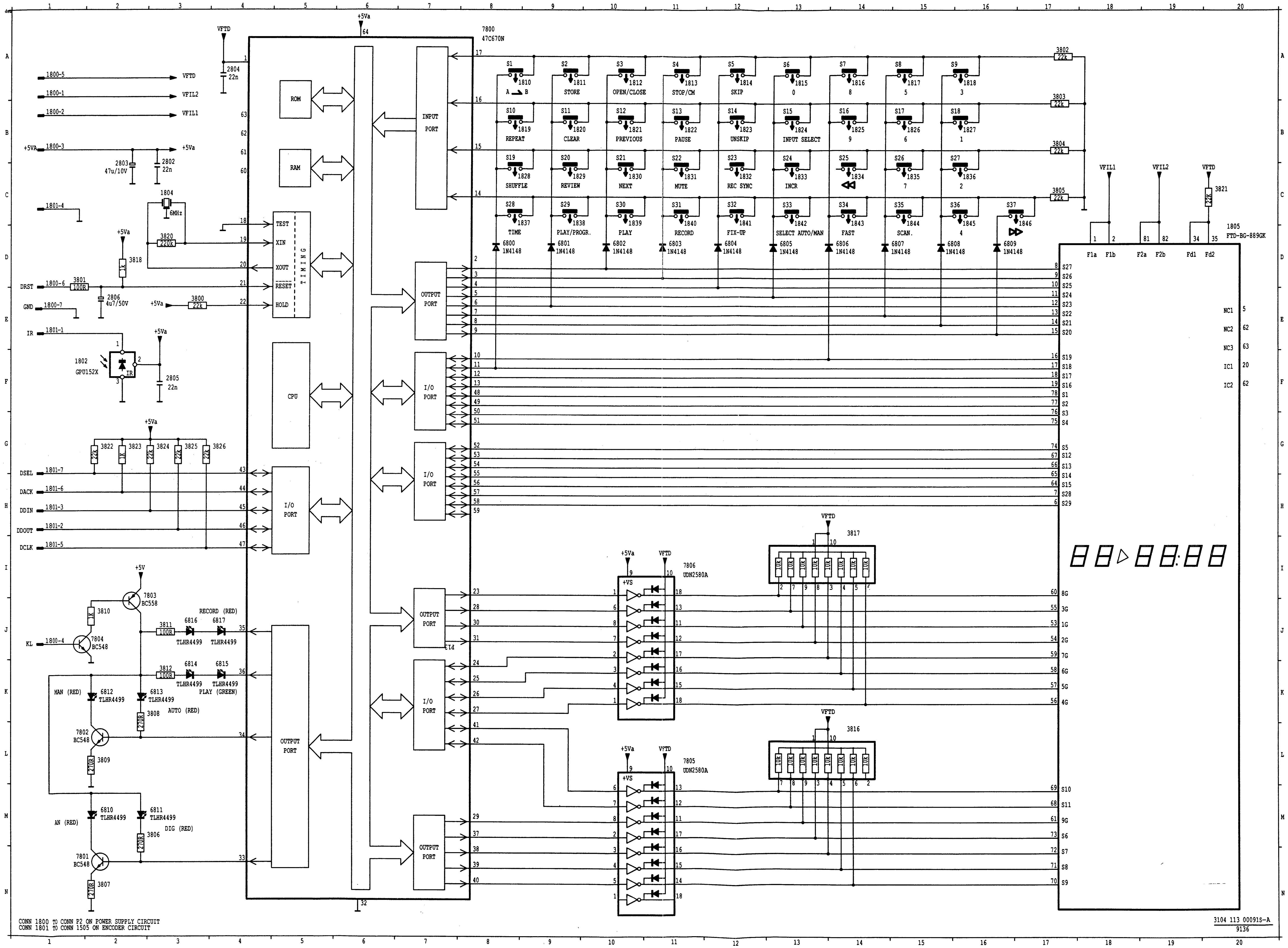


Q511
SM5840FP
INPUT DATA INTERFACE
DEEMPH & ATT CONT
FILTER AND ATT ARITHMETIC CONT
OUTPUT DATA INTERFACE
CLK & TIMING CONT
IW18
NC
VDD
DIN
BCKI
ATT
MUTE
EMPA
LRCI
XTI
CKO
RES
OW20
VSS
DOL
DOR
WCKO
BCKO
JD50-9 GND
JD50-7 DAAB
JD50-5 CLAB
JD50-6 GND
JD50-4 ATT
JD50-3 MUSB
JD50-1 EMPHA
JD50-2 +5V
JD50-8 WSAB
JD50-10 XSYS
X1N
Q512
PST523
VCC
OUT
GND
R512 100K
C512 2u2/16V
C524 47n
C523 47u/16V
R513 4R7
+5A
QD01
SAA7350 BS DAC
XSEL
TEST6
IDF3
IDF2
IDF1
TEST4
SDI2
SDI1
WSI
SCKI
TEST1
CONTROL
INPUT INTERFACE
BUS
NOISE SHAP -ER (L) +DIH -ER/OFFSET
NOISE SHAP -ER (R) +DIH -ER/OFFSET
SWITCHED CAPACITOR NETWORK
CLOCK OSC
CLK
TEST8
XSYS2
TEST7
TEST3
TEST2
VDDAL
INTL+
FBL+
VSSAL
FBL-
INTL-
VRCL
VDACL
VROL
IRR
VDDATL
VSSAT
VDDATR
VROR
VDACR
VRCR
INTR-
INTR+
FBR+
VSSAR
FBR-
VDD
VSS
XIN
XOUT
XSYS1
TEST5
VDDAR
RD11 4R7
CD13 47u/16V
CD11 47n
RD31 47k
CD31 39p
CD33 470p
CD37 470p
RD33 47k
CD35 39p
CD19 47n
CD21 47u/16V
CD23 47n
CD25 10u/16V
RD12 24K
RD15 100R
CD17 47u/16V
CD15 47n
RD16 100R
CD18 47u/16V
CD16 47n
CD26 10u/16V
CD24 47n
CD22 47u/16V
CD20 47n
CD36 39p
RD34 47k
CD32 39p
CD34 470p
CD38 470p
RD32 47k
CD09 47n
CD10 47u/16V
RD10 4R7
CD12 47n
CD14 47u/16V
RD09 4R7
C607 9k1
C601 100p
Q601 A NJM5532
R601 8k25
R603 8k25
R605 9k1
C603 100p
R681 2R2
C681 100u/16V
R609 5k62
R611 7k5
C605 1n
R613 5k62
C607 100p
Q602 B NJM5532
R683 2R2
C683 100u/16V
R615 100E
C609 100p
R608 9k1
C602 100p
Q602 A NJM5532
R602 8k25
R604 8k25
R606 9k1
C604 100p
R682 2R2
C682 100u/16V
R610 5k62
R612 7k5
C606 1n
R614 5k62
C608 100p
Q602 B NJM5532
R684 2R2
C684 100u/16V
R616 100E
C610 100p
-15
+15
JD51-6 R
JD51-7 -15V
JD51-5 GND
JD51-4 +5A
JD51-3 GND
JD51-2 +15V
JD51-1 L
3104 118 90101S
9144

BS DAC PANEL


R609
R611
C605
R613
C607
Q601
C601
R607
C603
R601
R603
R605
RD15
RD33
CD21
CD25
CD35
CD23
CD19
CD31
RD31
CD37
CD33
CD13
RD11
C512
R512
Q512
CD11
RD12
CD15
R615
R681
C683
C681
CD17
CD16
CD18
CD24
CD20
CD26
CD22
RD34
QD01
SAA7350
-15
R
G
+5
G
+15
L
C609
R683
C610
R684
C684
C682
R682
JD51
C604
R606
CD36
CD38
CD34
CD12
CD14
RD02
RD01
CD09
RD10
R513
C606
C608
R616
R612
Q602
C602
R608
R604
R602
RD32
CD32
R614
R610
RD16
RD09
CD01
CD02
CD10
XIN
XSYS
XD01
C523
C524
SCKI
RES
+5V
BM5840FP
Q511
JD50
EMPA
+5
MUSB
ATT
CLAB
GND
DAAB
WSAB
GND
XSYS
WIB
DAC PCB
PD16 LDA/LAU
CMK-140X 94V-0

CONTROL AND DISPLAY CIRCUIT DIAGRAM

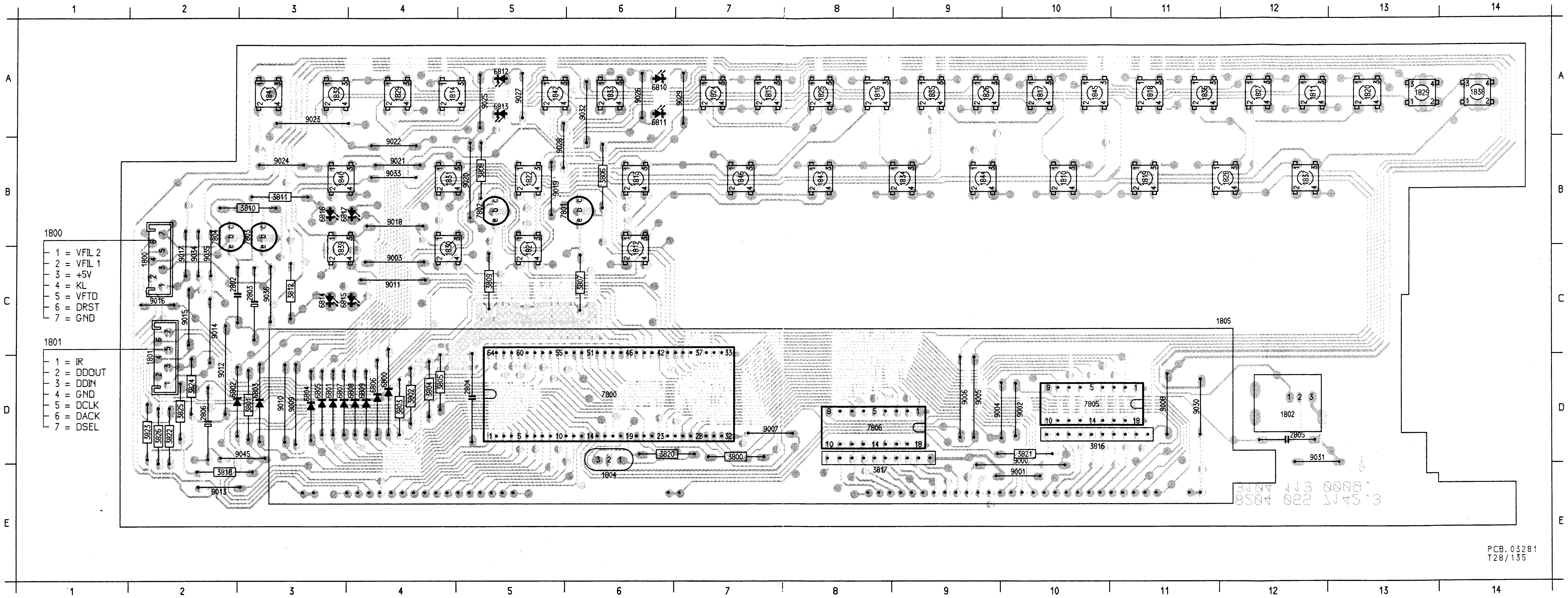

7800
47C670N
ROM
RAM
CPU
INPUT PORT
OUTPUT PORT
I/O PORT
TIMING
TEST
XIN
XOUT
RESET
HOLD
+5Va
VFTD
VFIL1
VFIL2
1800-5
1800-1
1800-2
1800-3
1801-4
1800-6
1800-7
1801-1
DRST
GND
IR
2804 22n
2803 47u/10V
2802 22n
1804 6MHz
3820 220k
3818 1k
3801 100R
2806 4u7/50V
3800 22k
1802 GPU152X
2805 22n
3822 22k
3823 1k
3824 22k
3825 22k
3826 22k
DSEL 1801-7
DACK 1801-6
DDIN 1801-3
DDOUT 1801-2
DCLK 1801-5
+5V
7803 BC558
3810 1k
KL 1800-4
7804 BC548
3811 100R
6816
6817
RECORD (RED)
TLHR4499
3812 100R
6814
6815
PLAY (GREEN)
MAN (RED)
6812 TLHR4499
6813 TLHR4499
3808 270R
AUTO (RED)
7802 BC548
3809 270R
AN (RED)
6810 TLHR4499
6811 TLHR4499
DIG (RED)
3806 270R
7801 BC548
3807 270R
S1 1810 A→B
S2 1811 STORE
S3 1812 OPEN/CLOSE
S4 1813 STOP/CM
S5 1814 SKIP
S6 1815 0
S7 1816 8
S8 1817 5
S9 1818 3
S10 1819 REPEAT
S11 1820 CLEAR
S12 1821 PREVIOUS
S13 1822 PAUSE
S14 1823 UNSKIP
S15 1824 INPUT SELECT
S16 1825 9
S17 1826 6
S18 1827 1
S19 1828 SHUFFLE
S20 1829 REVIEW
S21 1830 NEXT
S22 1831 MUTE
S23 1832 REC SYNC
S24 1833 INCR
S25 1834 ◁◁
S26 1835 7
S27 1836 2
S28 1837 TIME
S29 1838 PLAY/PROGR.
S30 1839 PLAY
S31 1840 RECORD
S32 1841 FIX-UP
S33 1842 SELECT AUTO/MAN
S34 1843 FAST
S35 1844 SCAN.
S36 1845 4
S37 1846 ▷▷
6800 1N4148
6801 1N4148
6802 1N4148
6803 1N4148
6804 1N4148
6805 1N4148
6806 1N4148
6807 1N4148
6808 1N4148
6809 1N4148
3802 22k
3803 22k
3804 22k
3805 22k
3821 22k
1805
FTD-BG-889GK
F1a F1b F2a F2b Fd1 Fd2
NC1 NC2 NC3 IC1 IC2
S1–S29
8G 3G 1G 2G 7G 6G 5G 4G
S10 S11 9G S6 S7 S8 S9
7806
UDN2580A
7805
UDN2580A
+VS
3817
3816
10k
3104 113 00091S-A
9136

CONN 1800 TO CONN P2 ON POWER SUPPLY CIRCUIT
CONN 1801 TO CONN 1505 ON ENCODER CIRCUIT

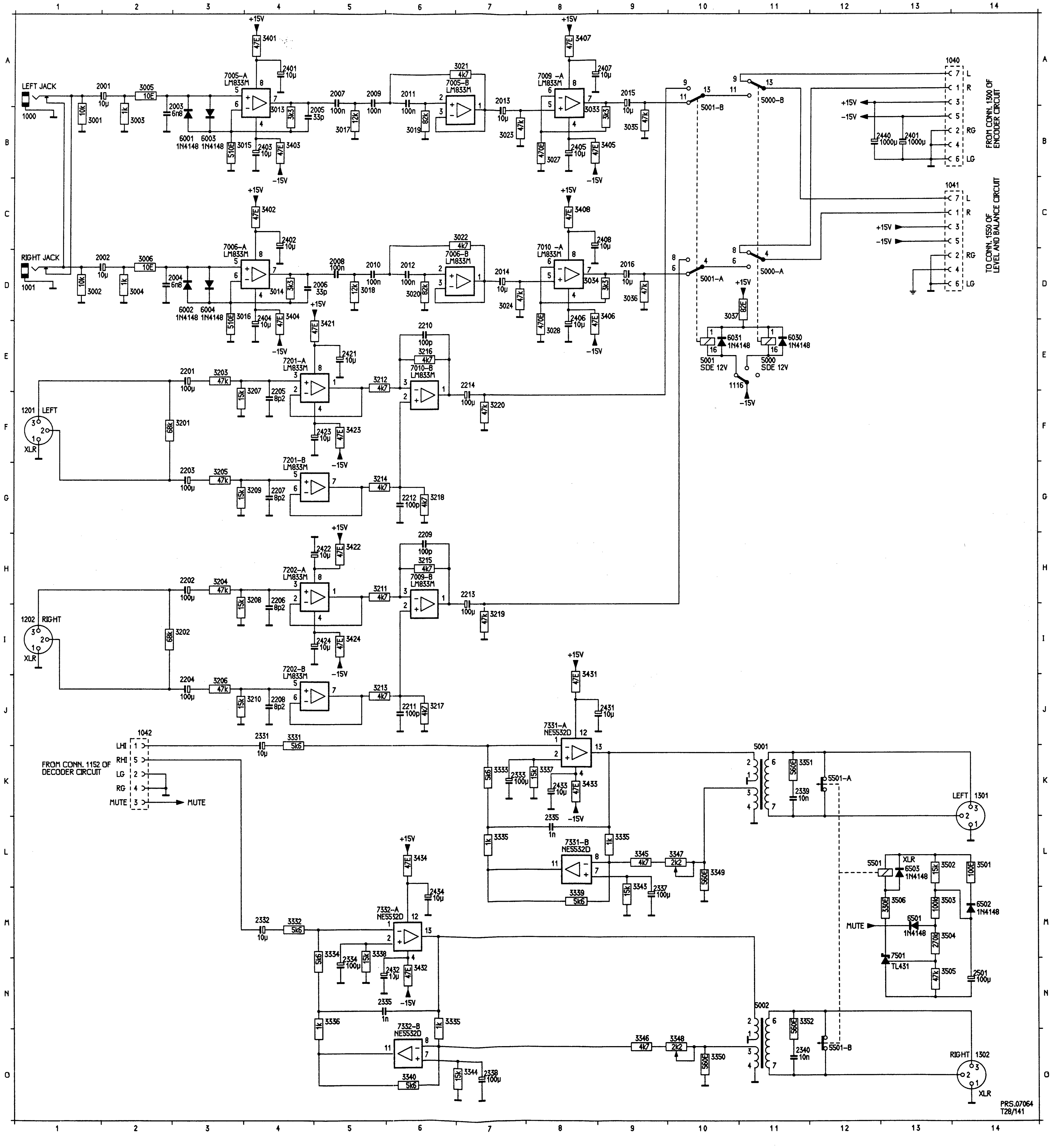
1800	E 1
1800	J 1
1800	D 1
1800	B 1
1800	B 1
1800	A 1
1800	A 1
1801	I 1
1801	H 1
1801	H 1
1801	H 1
1801	G 1
1801	E 1
1801	C 1
1802	F 2
1804	C 3
1805	D20
1810	A 8
1811	A 9
1812	A10
1813	A11
1814	A12
1815	A13
1816	A14
1817	A15
1818	A16
1819	B 8
1820	B 9
1821	B10
1822	B11
1823	B12
1824	B13
1825	B14
1826	B15
1827	B16
1828	C 8
1829	C 9
1830	C10
1831	C11
1832	C12
1833	C13
1834	C14
1835	C15
1836	C16
1837	C 8
1838	C 9
1839	C10
1840	C11
1841	C12
1842	C13
1843	C14
1844	C15
1845	C16
1846	C17
2802	C 3
2803	C 2
2804	A 4
2805	F 3
2806	E 2
3800	E 3
3801	D 1
3802	A17
3803	A17
3804	B17
3805	C17
3806	M 3
3807	N 2
3808	K 3
3809	L 2
3810	J 2
3811	J 3
3812	K 3
3816	L14
3817	H14
3818	D 2
3820	D 3
3821	C20
3822	G 2
3823	G 2
3824	G 3
3825	G 3
3826	G 4
6800	D 8
6801	D 9
6802	D10
6803	D11
6804	D12
6805	D13
6806	D14
6807	D15
6808	D16
6809	D16
6810	M 2
6811	M 3
6812	K 2
6813	K 3
6814	K 3
6815	K 4
6816	J 3
6817	J 4
7800	A 8
7801	N 2
7802	L 2
7803	I 2
7804	J 2
7805	L11
7806	I11

CONTROL AND DISPLAY PANEL

1800	C2	1815	A7	1826	A9	1835	A9	1845	A10	3803	D4	3816	D10	6800	D4	6810	A6	7802	B5	9005	D9	9015	C2	9025	A5	9035	C2
1801	D2	1816	A8	1827	A12	1836	A11	1846	B7	3804	D4	3817	E8	6801	D3	6811	A6	7803	B3	9006	D9	9016	C2	9026	A6	9036	C3
1802	D12	1817	A10	1828	B12	1837	B12	2802	C2	3805	D4	3818	E2	6802	D2	6812	A5	7804	B2	9007	D7	9017	C2	9027	A5	9045	D2
1804	E6	1818	A11	1829	A13	1838	A14	2803	C3	3806	B6	3820	D6	6803	D3	6813	A5	7805	D10	9008	D11	9018	B4	9028	B5		
1805	C11	1819	B11	1829	A4	1839	C3	2804	D5	3807	C6	3821	D10	6804	D3	6814	C3	7806	D8	9009	D3	9019	B5	9029	A7		
1810	B10	1820	A13	1830	C4	1840	B3	2805	D12	3808	B5	3822	D2	6805	D3	6815	C3	9000	D10	9010	D3	9020	B5	9030	D11		
1811	A12	1821	C5	1831	B4	1841	A3	2806	D2	3809	C5	3823	D2	6806	D4	6816	B3	9001	E10	9011	C4	9021	B4	9031	D12		
1812	C6	1822	B5	1832	A3	1842	A5	3800	D7	3810	B3	3824	D2	6807	D3	6817	B3	9002	D10	9012	D2	9022	B4	9032	A6		
1813	B6	1824	A7	1833	A6	1843	B8	3801	D3	3811	B3	3825	D2	6808	D4	7800	D6	9003	C4	9013	E2	9023	A3	9033	B4		
1814	A4	1825	A8	1834	B9	1844	B9	3802	D4	3812	C3	3826	D2	6809	D4	7801	B6	9004	D9	9014	C2	9024	B3	9034	C2		

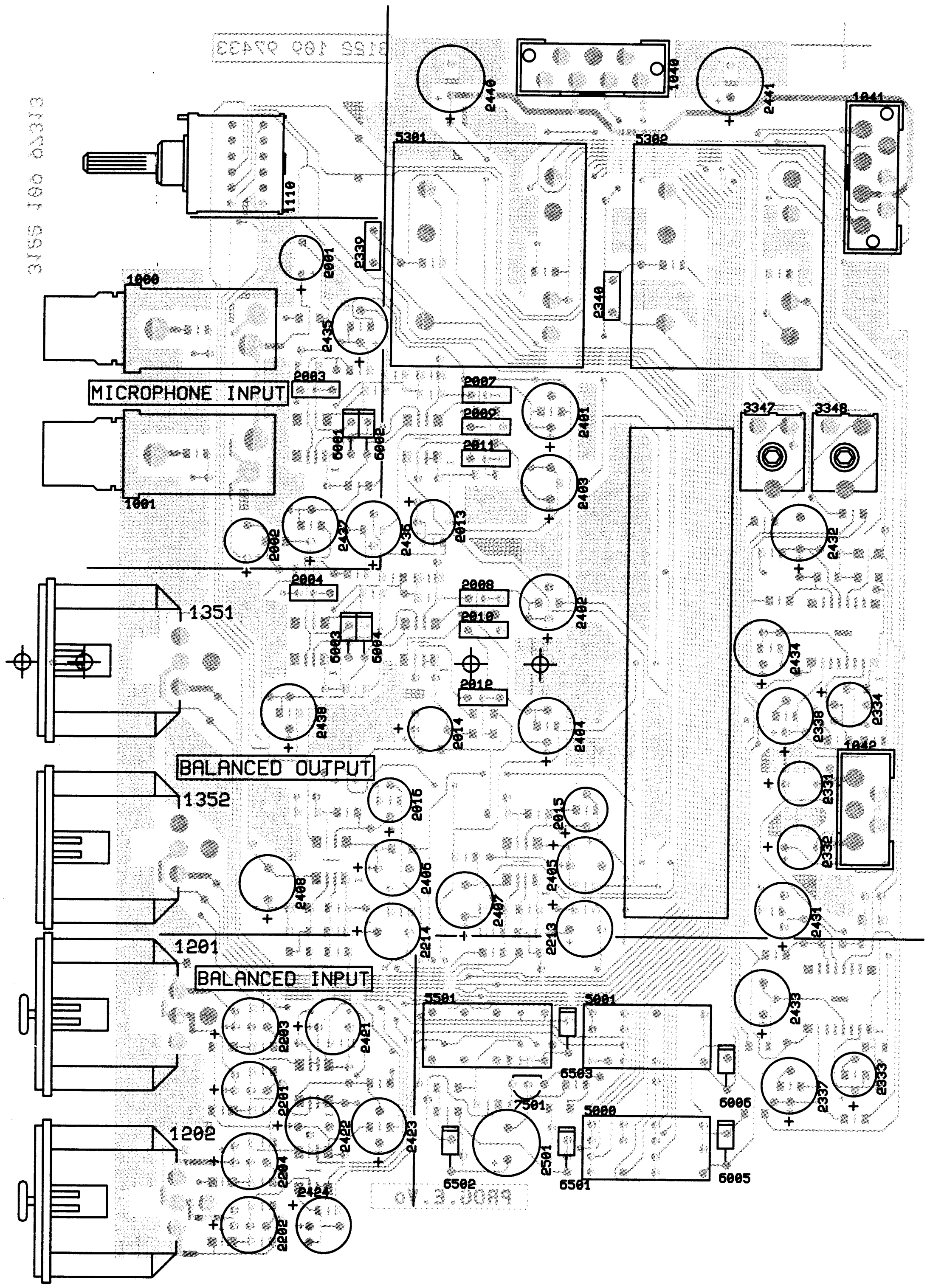

1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E
1800
1 = VFIL 2
2 = VFIL 1
3 = +5V
4 = KL
5 = VFTD
6 = DRST
7 = GND
1801
1 = IR
2 = DDOUT
3 = DDIN
4 = GND
5 = DCLK
6 = DACK
7 = DSEL
7800
7805
7806
1802
1804
1805
3816
3817
PCB. 03281
T28/135

XLR CIRCUIT DIAGRAM

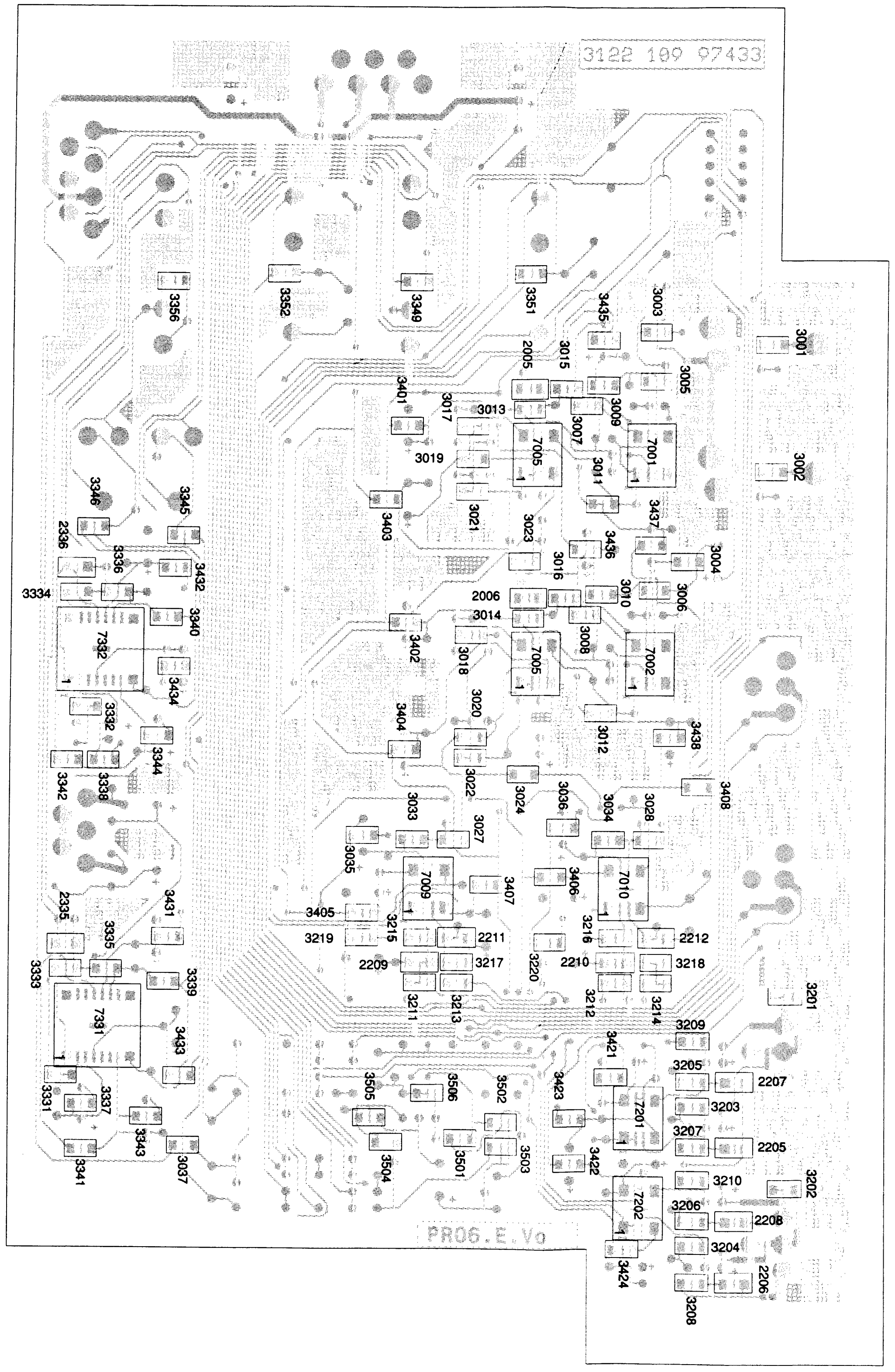

LEFT JACK
1000
RIGHT JACK
1001
1201 LEFT
XLR
1202 RIGHT
XLR
7005-A LM833M
7005-B LM833M
7006-A LM833M
7006-B LM833M
7009-A LM833M
7009-B LM833M
7010-A LM833M
7010-B LM833M
7201-A LM833M
7201-B LM833M
7202-A LM833M
7202-B LM833M
7331-A NE5532D
7331-B NE5532D
7332-A NE5532D
7332-B NE5532D
+15V
-15V
6001 1N4148
6002 1N4148
6003 1N4148
6004 1N4148
5001-B
5000-B
5001-A
5000-A
6031 1N4148
6030 1N4148
5001 SDE 12V
5000 SDE 12V
1116
1040
FROM CONN. 1300 OF ENCODER CIRCUIT
1041
TO CONN. 1550 OF LEVEL AND BALANCE CIRCUIT
L
R
RG
LG
1042
LHI
RHI
LG
RG
MUTE
MUTE
FROM CONN. 1152 OF DECODER CIRCUIT
5001
5002
5501-A
5501-B
LEFT 1301
RIGHT 1302
XLR
5501
6503 1N4148
6501 1N4148
6502 1N4148
7501 TL431
PRS.07064
T28/141

1000	B1
1001	D1
1040	A13
1041	C13
1042	J2
1116	E10
1201	F1
1202	I1
1301	K14
1302	O14
2001	A2
2002	D2
2003	B2
2004	D2
2005	B4
2006	D5
2007	A5
2008	D5
2009	A5
2010	D5
2011	A6
2012	D6
2013	A7
2014	D7
2015	A9
2016	D9
2201	E3
2202	H3
2203	G3
2204	J3
2205	F4
2206	H4
2207	G4
2208	J4
2209	H6
2210	E6
2211	J6
2212	G6
2213	H7
2214	E7
2331	J4
2332	M4
2333	K7
2334	N5
2335	L8
2335	N5
2337	M9
2338	O7
2339	K11
2340	O11
2401	A4
2401	B13
2402	C4
2403	B4
2404	E4
2405	B8
2406	E8
2407	A9
2408	C9
2421	E5
2422	H5
2423	F5
2424	I5
2431	J9
2432	N6
2433	K8
2434	M6
2440	B12
2501	N14
3001	B1
3002	D1
3003	B2
3004	D2
3005	A2
3006	D2
3013	B4
3014	D4
3015	B3
3016	D3
3017	B5
3018	D5
3019	B6
3020	D6
3021	A7
3022	C7
3023	B7
3024	D7
3027	B8
3028	E8
3033	B8
3034	D8
3035	B9
3036	D9
3037	D10
3201	F3
3202	I3
3203	E3
3204	H3
3205	G3
3206	J3
3207	F4
3208	H4
3209	G4
3210	J4
3211	H5
3212	E5
3213	J5
3214	G5
3215	H6
3216	E6
3217	J6
3218	G6
3219	I7
3220	F7
3331	J4
3332	M4
3333	K7
3334	M5
3335	L7
3335	L9
3335	N6
3336	N5
3337	K8
3338	M5
3339	M8
3340	O6
3343	M9
3344	O7
3345	L9
3346	O9
3347	L10
3348	O10
3349	L10
3350	O10
3351	K11
3352	N11
3401	A4
3402	C4
3403	B4
3404	D4
3405	B9
3406	D9
3407	A8
3408	C8
3421	E5
3422	H5
3423	F5
3424	I5
3431	J8
3432	N6
3433	K8
3434	L6
3501	L14
3502	L13
3503	M13
3504	M13
3505	N13
3506	M13
5000	A11
5000	D11
5000	E11
5001	B10
5001	D10
5001	E10
5001	K11
5002	N11
5501	K12
5501	L12
5501	O12
6001	B3
6002	D3
6003	B3
6004	D3
6030	E11
6031	E10
6501	M13
6502	M14
6503	L13
7005	A3
7005	A6
7006	D3
7006	D6
7009	A8
7009	H6
7010	D8
7010	E6
7201	E4
7201	G4
7202	H4
7202	I4
7331	J8
7331	L8
7332	M5
7332	O6
7501	N13

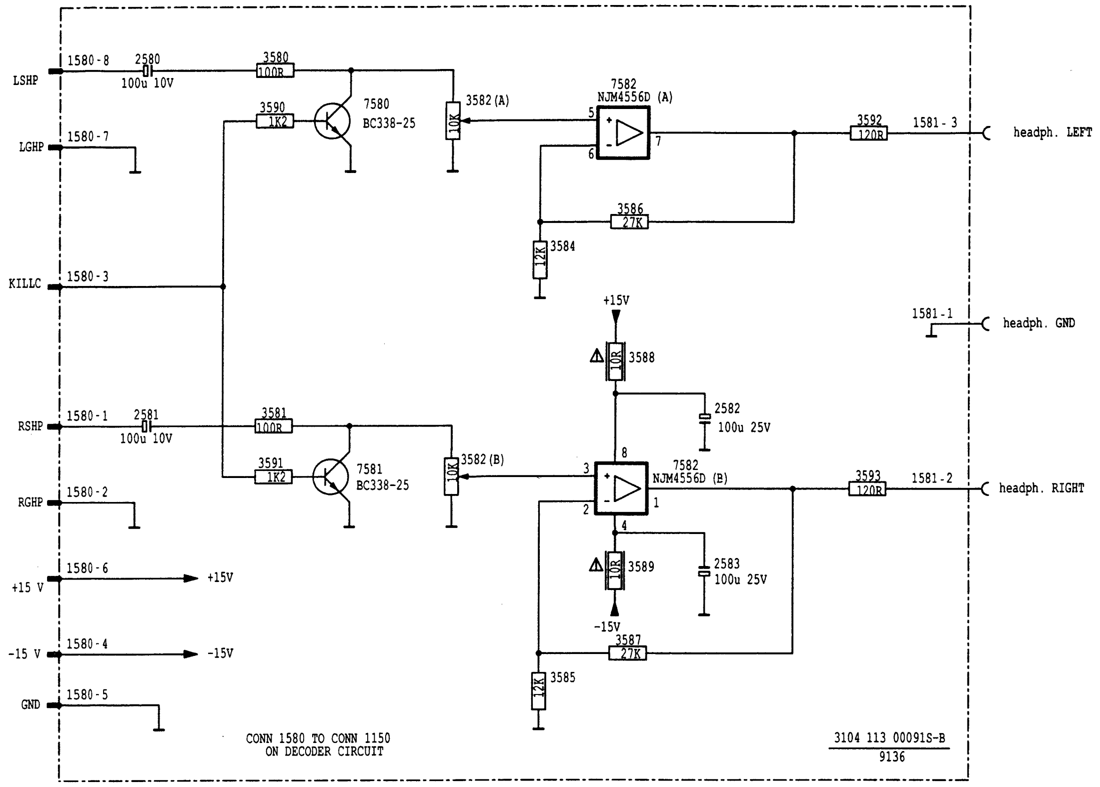
XLR PANEL COMPONENT SIDE


3122 109 97433
1110
1000
1001
1040
1041
1042
1351
1352
1201
1202
MICROPHONE INPUT
BALANCED OUTPUT
BALANCED INPUT
5301
5302
3347
3348
2440
2441
2339
2340
2001
2435
2003
2007
2009
2011
2401
2403
2002
2437
2436
2013
2432
2004
2008
2010
2012
2402
2434
2438
2014
2404
2338
2334
2331
2332
2016
2015
2406
2405
2408
2407
2214
2213
2431
2203
2421
2433
2201
2422
2423
2337
2333
2204
2424
2202
5501
5001
6503
6006
7501
6502
2501
6501
5000
6005
6001
6002
6003
6004
PROG.E.Vo

XLR PANEL SOLDER SIDE

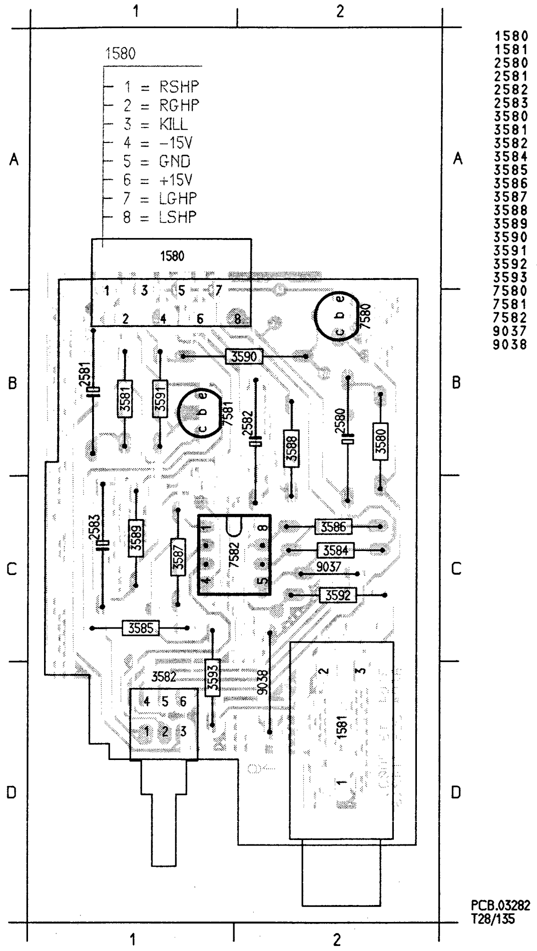

3122 109 97433
3356
3352
3349
3351
3435
3003
3001
2005
3015
3005
3401
3017
3013
3009
3007
7005
7001
3019
3011
3002
3346
3345
3403
3021
3023
3437
3436
3004
2336
3336
3432
3016
3010
3006
3334
2006
3014
3340
7332
3402
3018
3008
7002
3434
3020
3404
3012
3438
3332
3344
3022
3024
3036
3034
3028
3408
3342
3338
3033
3027
3035
7009
3407
3406
7010
2335
3431
3405
3219
3215
2211
3216
2212
3335
2209
3217
3220
2210
3218
3333
3339
3211
3213
3212
3214
3201
7331
3433
3209
3421
3205
2207
3505
3506
3502
3423
3203
3331
3337
7201
3207
2205
3343
3037
3504
3501
3503
3422
3210
3202
3341
7202
3206
2208
3204
3424
2206
3208
PROG.E.Vo

HEADPHONE CIRCUIT DIAGRAM



LSHP
1580-8
2580
100u 10V
3580
100R
3590
1K2
7580
BC338-25
3582 (A)
10K
7582
NJM4556D (A)
5
6
7
3592
120R
1581-3
headph. LEFT
LGHP
1580-7
3586
27K
3584
12K
KILLC
1580-3
+15V
1581-1
headph. GND
10R
3588
2582
100u 25V
RSHP
1580-1
2581
100u 10V
3581
100R
3591
1K2
7581
BC338-25
3582 (B)
10K
8
3
7582
NJM4556D (B)
2
1
4
3593
120R
1581-2
headph. RIGHT
RGHP
1580-2
10R
3589
2583
100u 25V
+15 V
1580-6
+15V
-15 V
1580-4
-15V
-15V
3587
27K
3585
12K
GND
1580-5
CONN 1580 TO CONN 1150
ON DECODER CIRCUIT
3104 113 00091S-B
9136

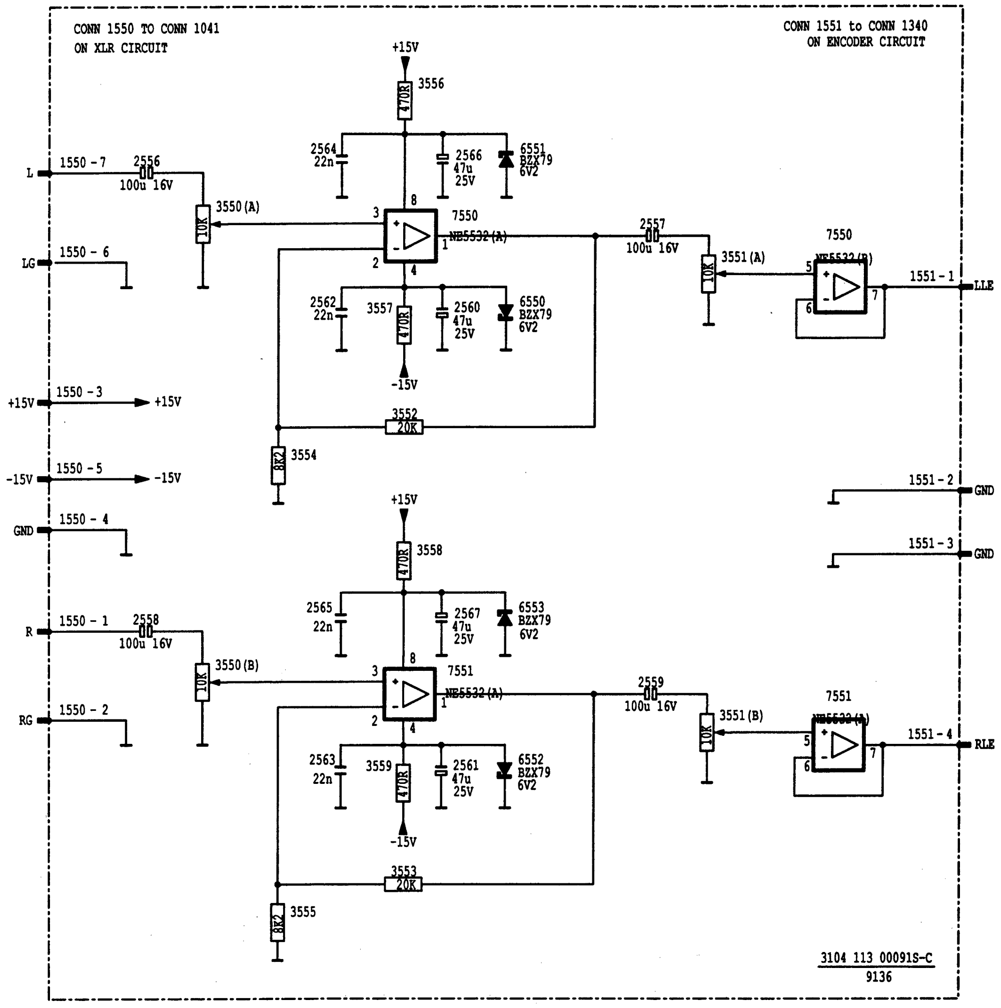
HEADPHONE PANEL



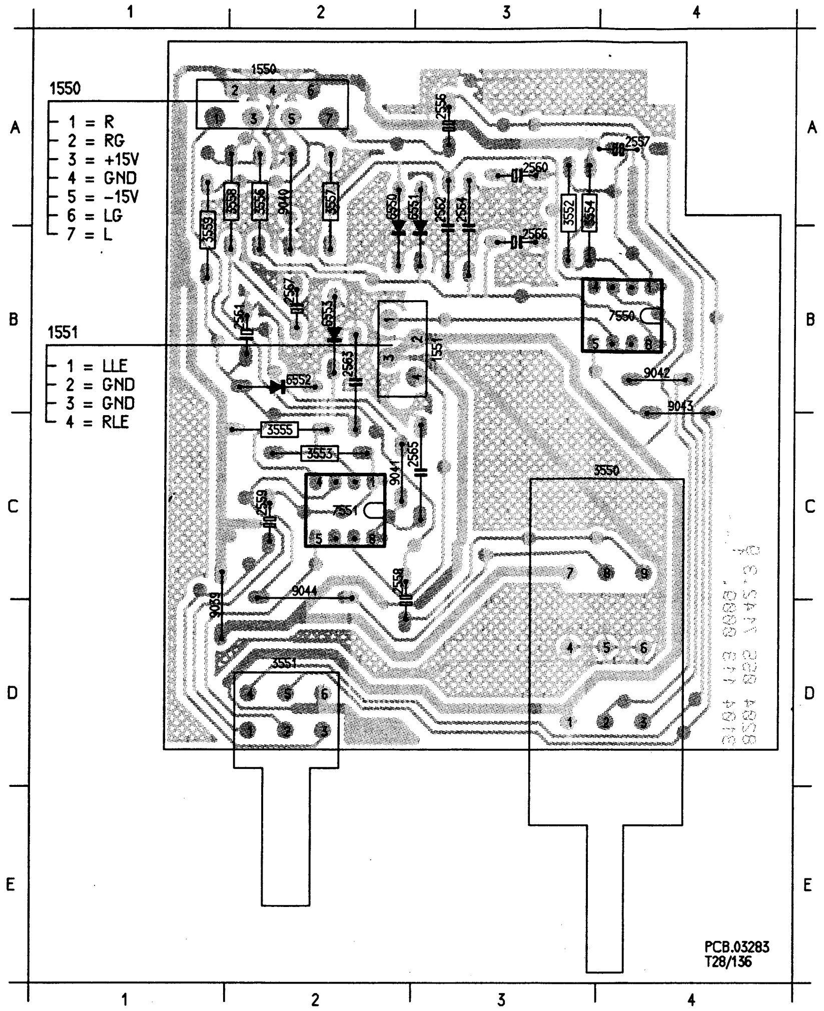
1
2
A
B
C
D
1580
1 = RSHP
2 = RGHP
3 = KILL
4 = -15V
5 = GND
6 = +15V
7 = LGHP
8 = LSHP
1580
3590
7580
2581
3581
3591
7581
2582
3588
2580
3580
2583
3589
3587
7582
3586
3584
9037
3592
3585
3582
3593
9038
1581
PCB.03282
T28/135

1580	A1
1581	D2
2580	B2
2581	B1
2582	B2
2583	C1
3580	B2
3581	B1
3582	D1
3584	C2
3585	C1
3586	C2
3587	C1
3588	B2
3589	C1
3590	B1
3591	B1
3592	C2
3593	D1
7580	B2
7581	B1
7582	C2
9037	C2
9038	D2

LEVEL AND BALANCE CIRCUIT DIAGRAM


CONN 1550 TO CONN 1041
ON XLR CIRCUIT
CONN 1551 to CONN 1340
ON ENCODER CIRCUIT
L
1550 - 7
2556
100u 16V
3550 (A)
10K
LG
1550 - 6
+15V
3556
470R
2564
22n
2566
47u
25V
6551
BZX79
6V2
3
8
7550
NE5532 (A)
1
2
4
2562
22n
3557
470R
2560
47u
25V
6550
BZX79
6V2
-15V
3552
20K
3554
8K2
2557
100u 16V
3551 (A)
10K
7550
NE5532 (B)
5
6
7
1551 - 1
LLE
+15V
1550 - 3
+15V
-15V
1550 - 5
-15V
GND
1550 - 4
1551 - 2
GND
1551 - 3
GND
+15V
3558
470R
2565
22n
2567
47u
25V
6553
BZX79
6V2
R
1550 - 1
2558
100u 16V
3550 (B)
10K
RG
1550 - 2
3
8
7551
NE5532 (A)
1
2
4
2563
22n
3559
470R
2561
47u
25V
6552
BZX79
6V2
-15V
2559
100u 16V
3551 (B)
10K
7551
NE5532 (A)
5
6
7
1551 - 4
RLE
3553
20K
3555
8K2
3104 113 00091S-C
9136

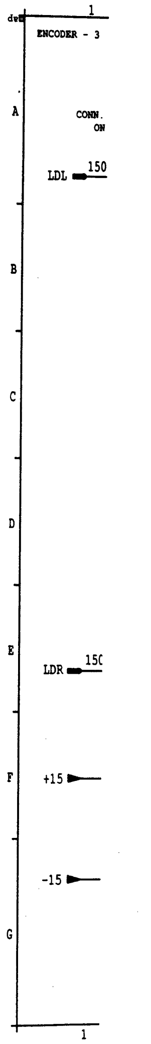
LEVEL AND BALANCE PANEL


1
2
3
4
A
B
C
D
E
1550
1 = R
2 = RG
3 = +15V
4 = GND
5 = -15V
6 = LG
7 = L
1551
1 = LLE
2 = GND
3 = GND
4 = RLE
1550
3550
3551
7550
7551
9042
9043
9044
9039
PCB.03283
T28/136

1550	A2
1551	B3
2556	A3
2557	A4
2558	C2
2559	C2
2560	A3
2561	B2
2562	A3
2563	B2
2564	A3
2565	C3
2566	B3
2567	B2
3550	C3
3551	D2
3552	B3
3553	C2
3554	B3
3555	C2
3556	A2
3557	A2
3558	A2
3559	B1
6550	A2
6551	A3
6552	B2
6553	B2
7550	B4
7551	C2
9039	D1
9040	A2
9041	C2
9042	B4
9043	B4
9044	C2

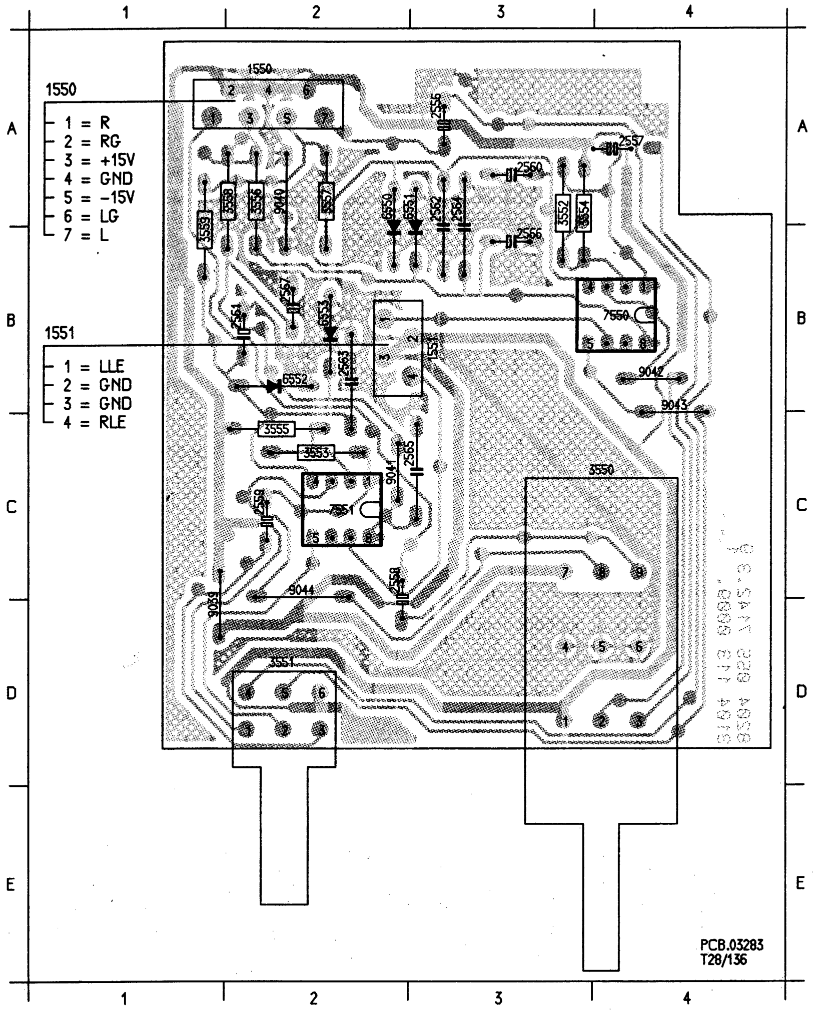
LEVEL

1501	A	1
1501	E	1
2750	D	7
2751	A	7
2752	F	7


1
ENCODER - 3
A
CONN.
ON
LDL
150
B
C
D
E
LDR
150
F
+15
-15
G
1

LLE
GND
GND
RLE

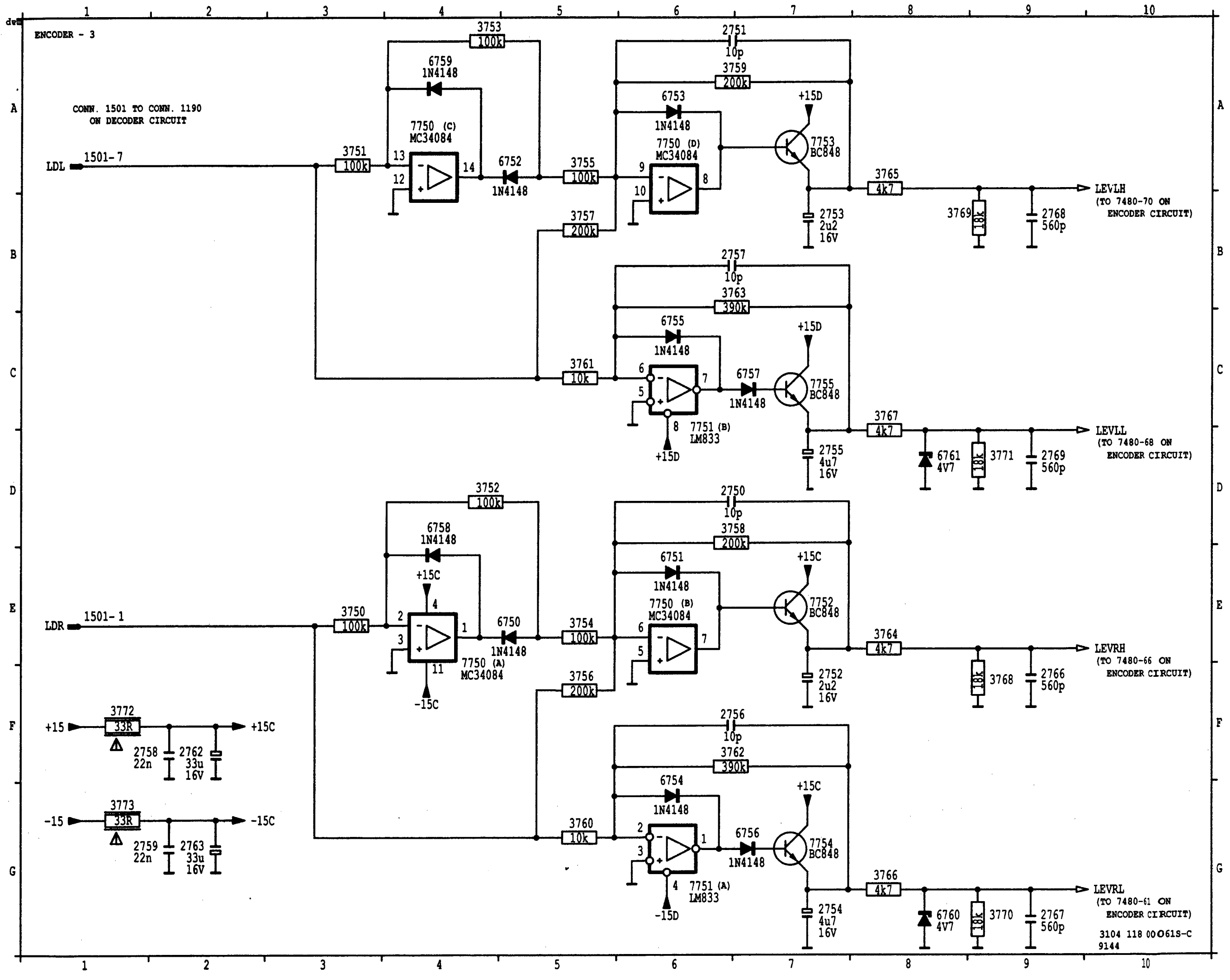
LEVEL AND BALANCE PANEL


1
2
3
4
A
B
C
D
E
1550
1 = R
2 = RG
3 = +15V
4 = GND
5 = −15V
6 = LG
7 = L
1551
1 = LLE
2 = GND
3 = GND
4 = RLE
7550
7551
3550
3551
3555
3553
6552
9042
9043
9044
9039
PCB.03283
T28/136

1550	A2
1551	B3
2556	A3
2557	A4
2558	C2
2559	C2
2560	A3
2561	B2
2562	A3
2563	B2
2564	A3
2565	C3
2566	B3
2567	B2
3550	C3
3551	D2
3552	B3
3553	C2
3554	B3
3555	C2
3556	A2
3557	A2
3558	A2
3559	B1
6550	A2
6551	A3
6552	B2
6553	B2
7550	B4
7551	C2
9039	D1
9040	A2
9041	C2
9042	B4
9043	B4
9044	C2

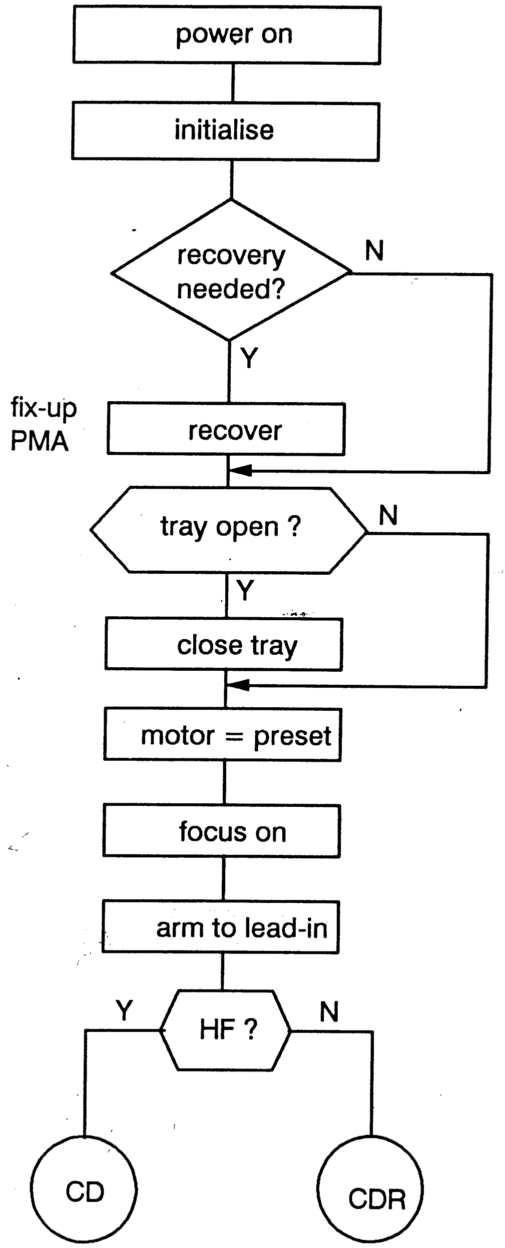
LEVEL DETECTION CIRCUIT DIAGRAM

1501	A 1
1501	E 1
2750	D 7
2751	A 7
2752	F 7
2753	B 7
2754	G 7
2755	D 7
2756	F 7
2757	B 7
2758	F 1
2759	G 1
2762	F 2
2763	G 2
2766	F 9
2767	G 9
2768	B 9
2769	D 9
3750	E 3
3751	A 3
3752	D 4
3753	A 4
3754	E 5
3755	A 5
3756	F 5
3757	B 5
3758	D 6
3759	A 6
3760	G 5
3761	C 5
3762	F 6
3763	B 6
3764	E 8
3765	A 8
3766	G 8
3767	C 8
3768	F 9
3769	B 8
3770	G 9
3771	D 9
3772	F 1
3773	G 1
6750	E 4
6751	E 6
6752	A 4
6753	A 6
6754	G 6
6755	C 6
6756	G 7
6757	C 7
6758	D 4
6759	A 4
6760	G 8
6761	D 8
7750	A 4
7750	F 4
7750	E 6
7750	A 6
7751	C 6
7751	G 6
7752	E 7
7753	A 7
7754	G 7
7755	C 7


ENCODER - 3
CONN. 1501 TO CONN. 1190 ON DECODER CIRCUIT
LDL 1501-7
LDR 1501-1
+15
-15
+15C
-15C
+15D
-15D
3772 33R
3773 33R
2758 22n
2762 33u 16V
2759 22n
2763 33u 16V
3751 100k
3750 100k
3753 100k
3752 100k
6759 1N4148
6758 1N4148
7750 (C) MC34084
7750 (A) MC34084
7750 (D) MC34084
7750 (B) MC34084
7751 (B) LM833
7751 (A) LM833
6752 1N4148
6750 1N4148
3755 100k
3754 100k
3757 200k
3756 200k
3761 10k
3760 10k
2751 10p
3759 200k
2757 10p
3763 390k
2750 10p
3758 200k
2756 10p
3762 390k
6753 1N4148
6755 1N4148
6751 1N4148
6754 1N4148
6757 1N4148
6756 1N4148
7753 BC848
7755 BC848
7752 BC848
7754 BC848
2753 2u2 16V
2755 4u7 16V
2752 2u2 16V
2754 4u7 16V
3765 4k7
3767 4k7
3764 4k7
3766 4k7
3769 18k
3771 18k
3768 18k
3770 18k
6761 4V7
6760 4V7
2768 560p
2769 560p
2766 560p
2767 560p
LEVLH (TO 7480-70 ON ENCODER CIRCUIT)
LEVLL (TO 7480-68 ON ENCODER CIRCUIT)
LEVRH (TO 7480-66 ON ENCODER CIRCUIT)
LEVRL (TO 7480-61 ON ENCODER CIRCUIT)
3104 118 00061S-C
9144

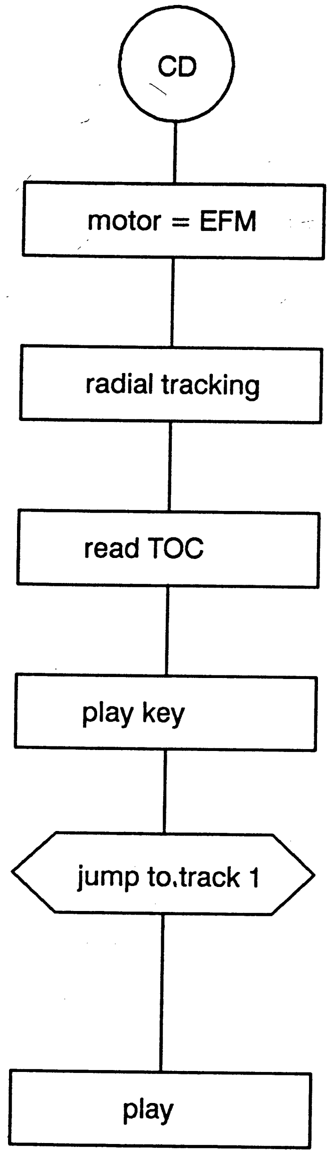
The components of this circuit diagram are situated on the ENCODER PANEL.

START UP PROCEDURE

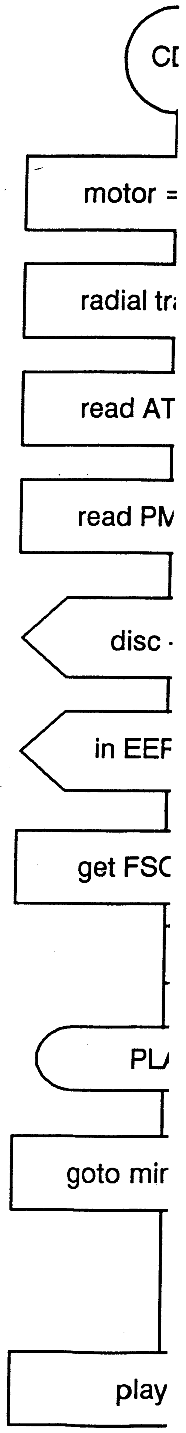

power on
initialise
recovery needed?
N
Y
fix-up PMA
recover
tray open ?
N
Y
close tray
motor = preset
focus on
arm to lead-in
Y
HF ?
N
CD
CDR

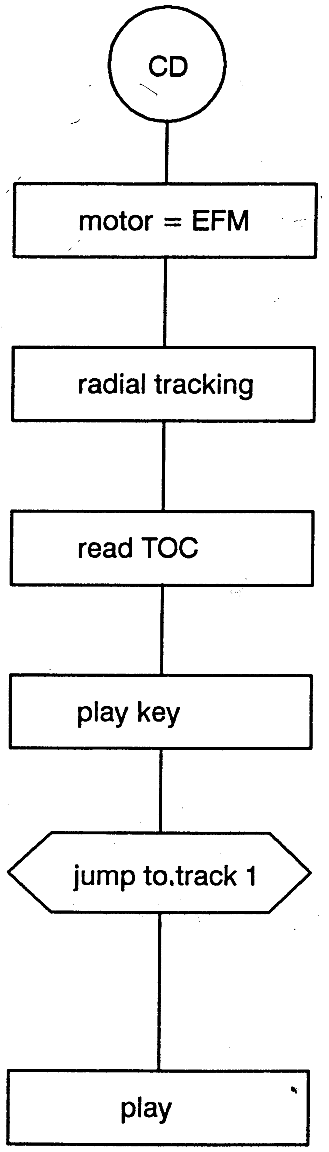
CDR : flowchart start-up

IN	OUT
AC MAINS	Supply Voltages KILL, KL, DRST OFF, RESET
RESET	SRST
	update PMA
TRIN, TROUT	TRMOT, LMOT TRIN
SRDAT, SRCMC	MCESSEL, MOT MREADY
MCESSEL, FOCON CAN, FEN	FACT, FOCOK
SLLS, SLIN	SLMOT, SLBS
HFSEL, IHF	EFMD

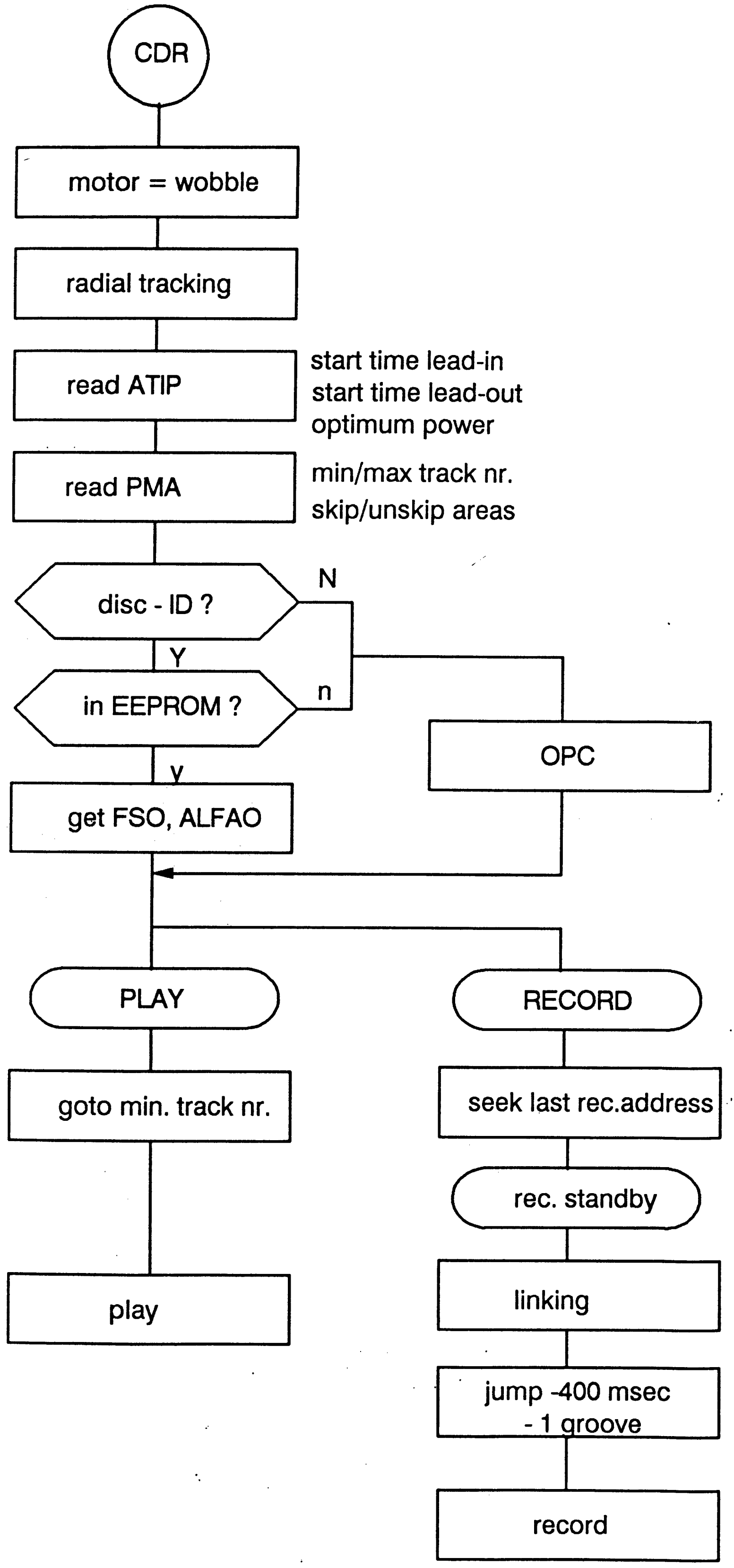

CD
motor = EFM
radial tracking
read TOC
play key
jump to.track 1
play

IN	OUT
MCSEL, HF, MSC, MERR	MOT
REN, SLLS	RACT, SLMOT
HF, QCL, QRA	QDA
RJEN, RJV1-7, SLLS	SLMOT, RACT

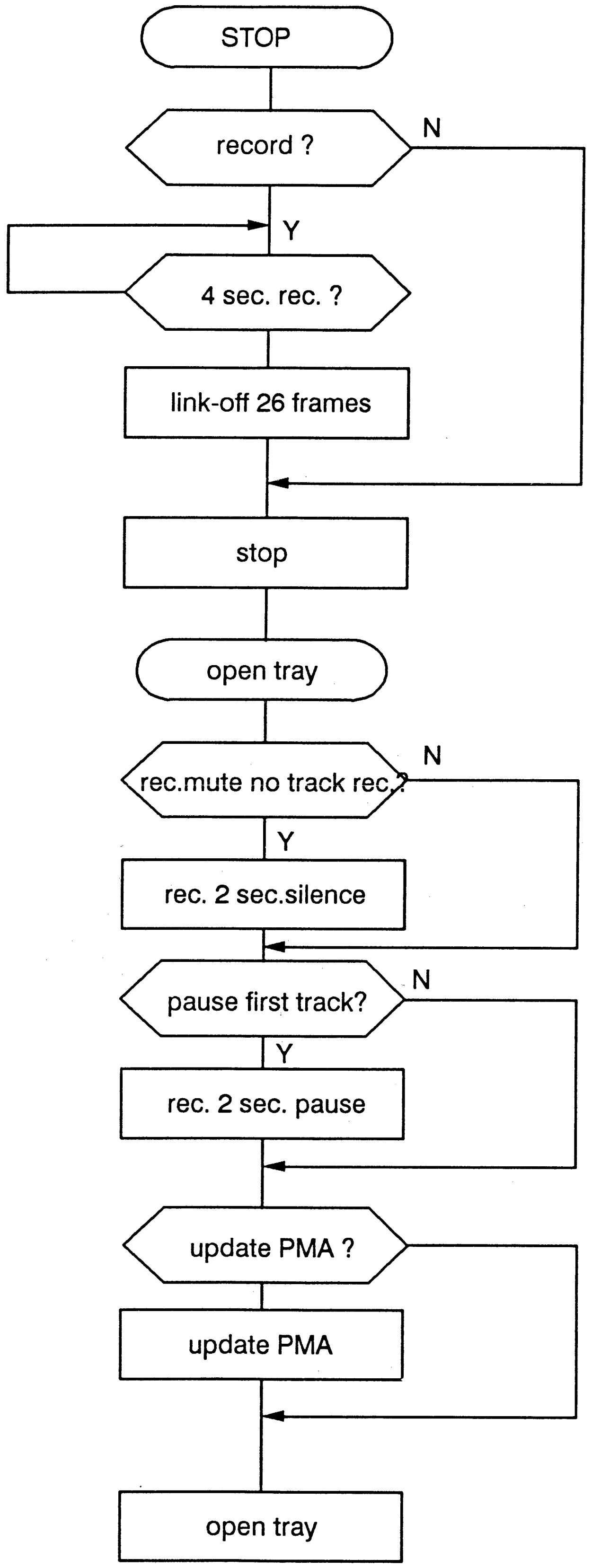

CI
motor =
radial tr
read AT
read PM
disc
in EEF
get FSC
PL
goto mir
play


CD
motor = EFM
radial tracking
read TOC
play key
jump to.track 1
play

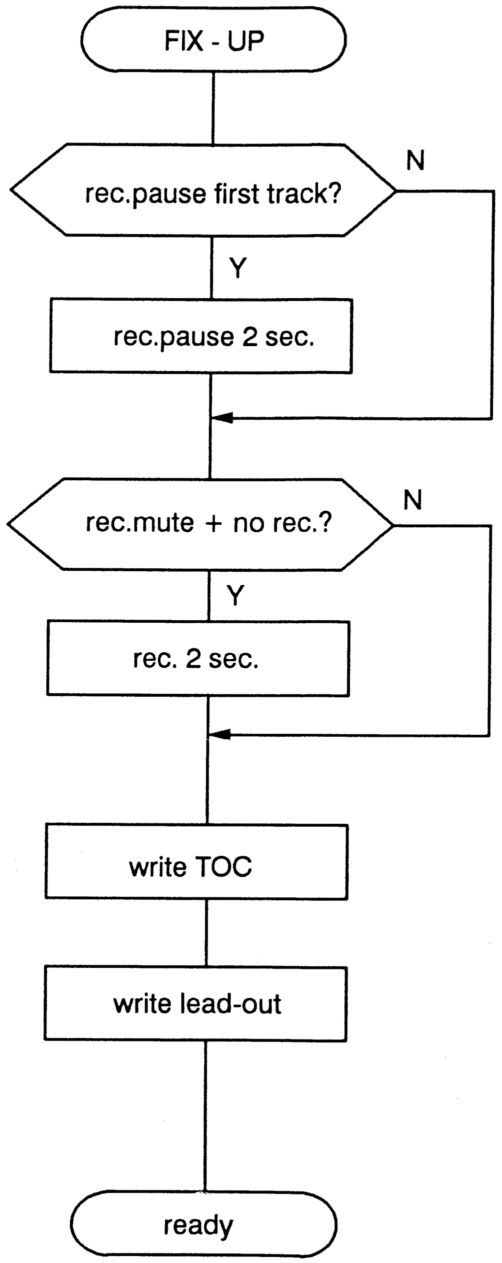
	IN	OUT
motor = EFM	MCSEL, HF, MSC, MERR	MOT
radial tracking	REN, SLLS	RACT, SLMOT
read TOC	HF, QCL, QRA	QDA
jump to.track 1	RJEN, RJV1-7, SLLS	SLMOT, RACT

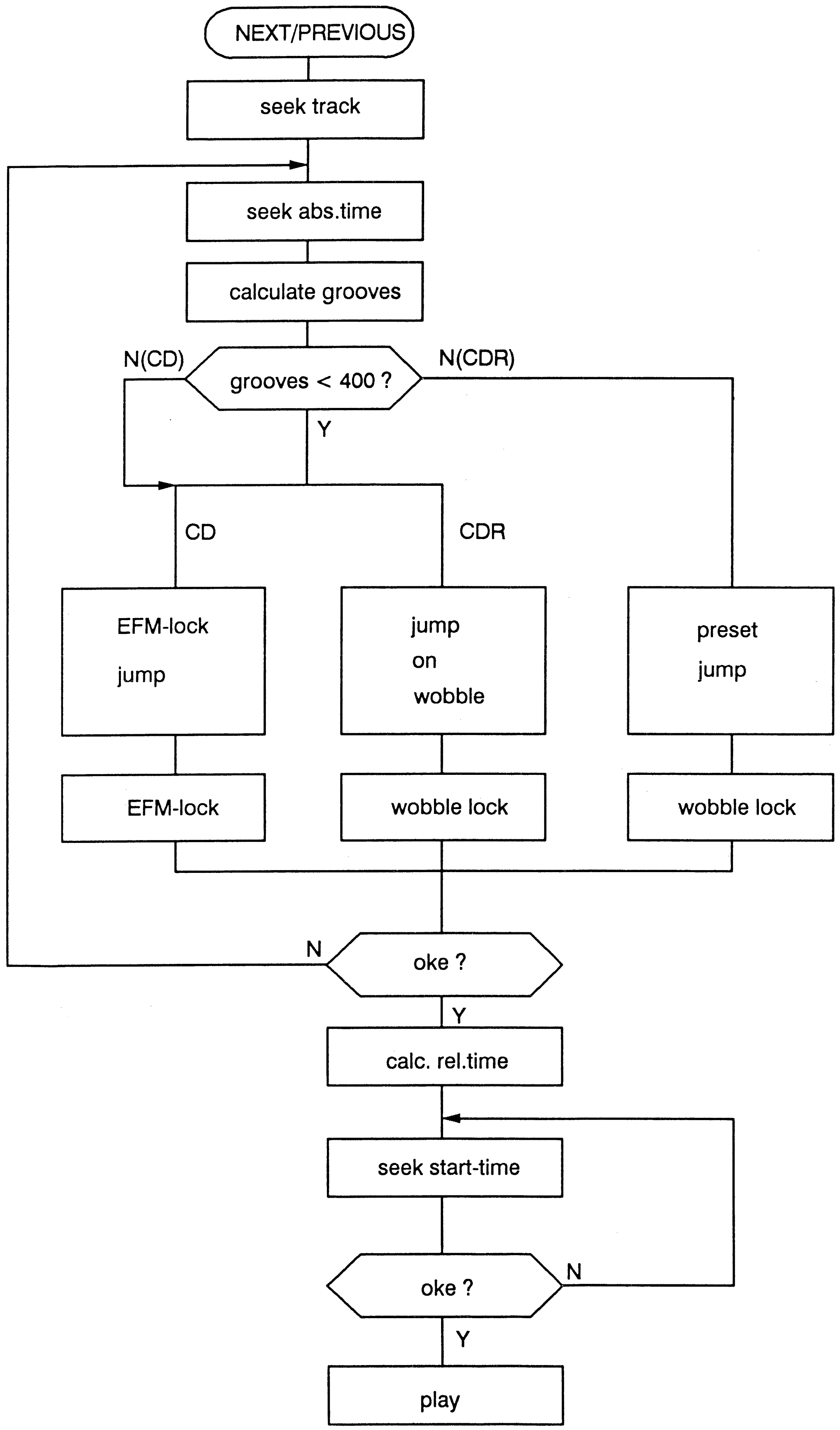

CDR
motor = wobble
radial tracking
read ATIP
start time lead-in
start time lead-out
optimum power
read PMA
min/max track nr.
skip/unskip areas
disc - ID ?
N
Y
in EEPROM ?
n
y
OPC
get FSO, ALFAO
PLAY
RECORD
goto min. track nr.
play
seek last rec.address
rec. standby
linking
jump -400 msec
- 1 groove
record

	IN	OUT
motor = wobble	MCSEL, PPN, WOBBLE	MERR, MOT
radial tracking	REN, SLLS	RACT, SLMOT
read ATIP	WOBBLE	D0-D7
read PMA	HF, QCL, QRA	QDA
get FSO, ALFAO		FSO, ALFA0
seek last rec.address	REN	RACT, SLMOT
record	LASWR, LSRON	WRLASER RWLASER IREAD IWRITE


STOP
record ?
N
Y
4 sec. rec. ?
link-off 26 frames
stop
open tray
rec.mute no track rec.?
N
Y
rec. 2 sec.silence
pause first track?
N
Y
rec. 2 sec. pause
update PMA ?
update PMA
open tray

each step:
on error: try 5 X
then open tray
disc destroyed


FIX - UP
rec.pause first track?
N
Y
rec.pause 2 sec.
rec.mute + no rec.?
N
Y
rec. 2 sec.
write TOC
write lead-out
ready


NEXT/PREVIOUS
seek track
seek abs.time
calculate grooves
N(CD)
grooves < 400 ?
N(CDR)
Y
CD
CDR
EFM-lock
jump
jump
on
wobble
preset
jump
EFM-lock
wobble lock
wobble lock
N
oke ?
Y
calc. rel.time
seek start-time
oke ?
N
Y
play

FAULTFINDING DIAGNOSIS

WOSP

-set upside down

Remove bottomplate

- Visual control: are all the solderings ok? (transistors, IC's)
- Check safety resistors
- Check all voltages (on connectors, IC's)
- Check actuator (ohmic)
  on flex connector 1003 on WOSP
  Radial actuator: points 25 - 28
  Focus actuator : points 26 - 27

- Open the set

Remove the clamper

- Actuator is visible:
  Press play: turntable motor turns
  focus 2x pumping
  laserlight
  ok
- Actuator is inside:
  Press play: turntable motor turns a few seconds
  no focus
  no laserlight
  slide switch is not closed
  (wiring or switch)
- Test of turntable motor:
  (Black connector) External 1V on motor
- Test of slidemotor:
  (Grey connector) External -1V: slide goes outwards
  +1V: slide goes inwards
- Test of slidebeginswitch:
  (Red connector) When slide is inside: 0Ω

INSTRUCTION TO REPLACE CDM-UNIT OR ENCODER PCB (ONLY FOR SOFTWARE FASE 1)

By replacing the CDM-unit and/or the Encoder PCB problems can occur with wrong OPC values or TOC tables. To prevent these problems, the EEPROM (IC 7481) has to be cleared.
After replacing the CDM-unit and/or the Encoder PCB, this can be done as follows:

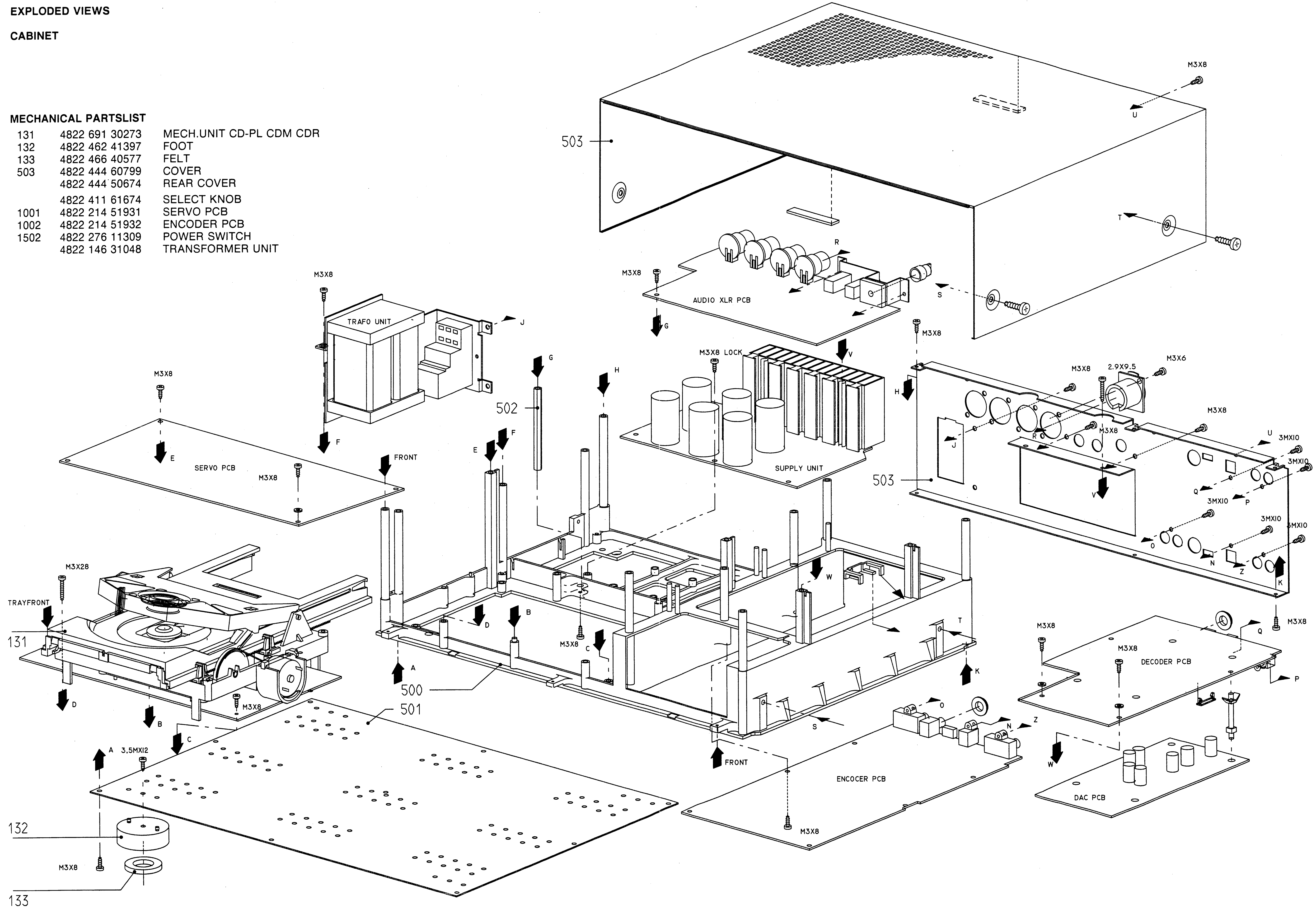
1. Power off.
2. Connect pin 2 (A16) to pin 16 (GND) of IC 7481 (situated on Encoder PCB coordinates F1) by means of e.g. miniature clips.
3. Power on.
4. Press 11 (two times one)
5. Press FIX UP
6. After ± 20 seconds, the display shows 01: the EEPROM has been cleared. If the display shows 00: the EEPROM is defective.
7. Power off.
8. Remove the connection.

EXPLODED VIEWS

CABINET

MECHANICAL PARTSLIST

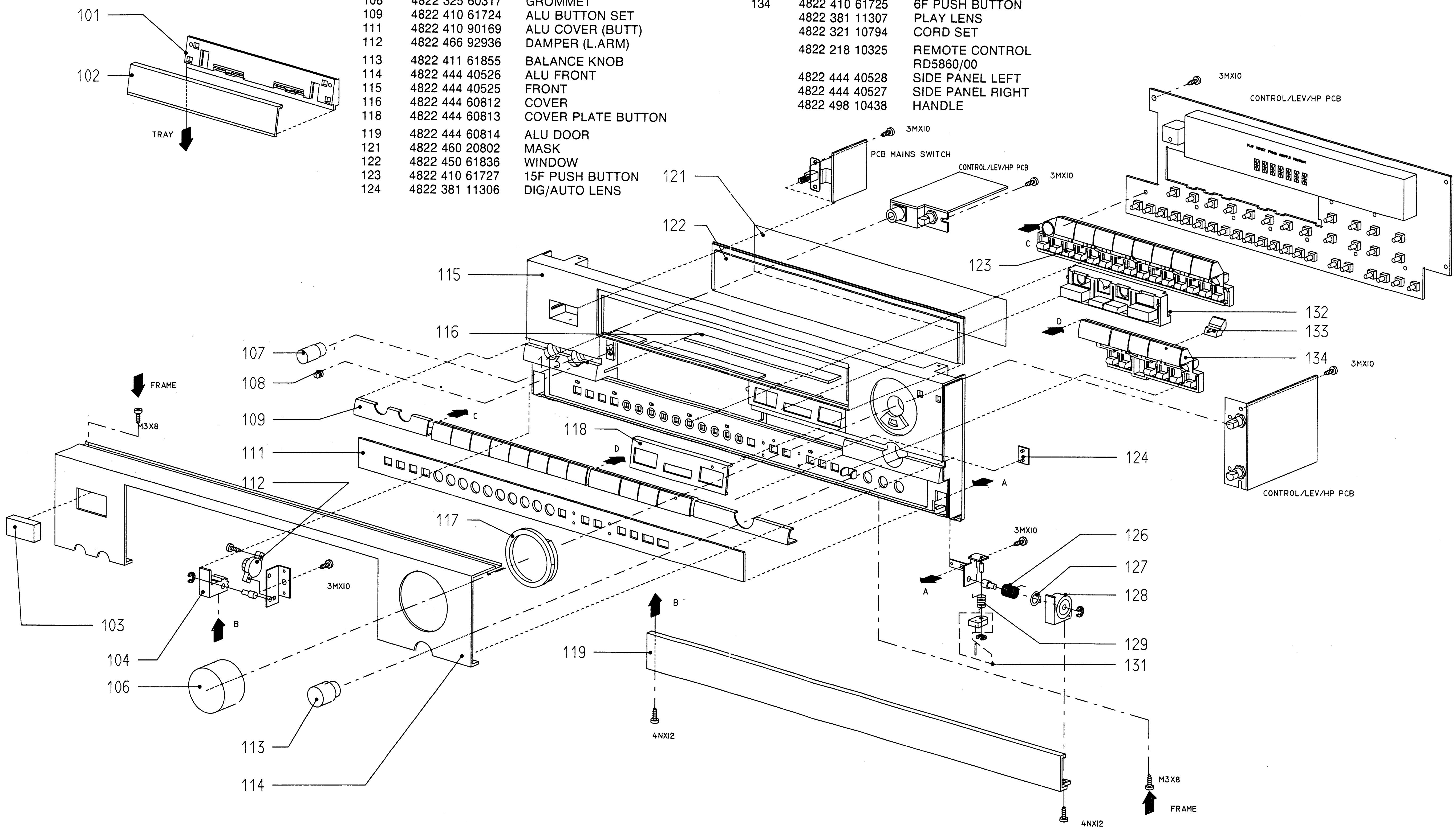
131	4822 691 30273	MECH.UNIT CD-PL CDM CDR
132	4822 462 41397	FOOT
133	4822 466 40577	FELT
503	4822 444 60799	COVER
	4822 444 50674	REAR COVER
	4822 411 61674	SELECT KNOB
1001	4822 214 51931	SERVO PCB
1002	4822 214 51932	ENCODER PCB
1502	4822 276 11309	POWER SWITCH
	4822 146 31048	TRANSFORMER UNIT


503
M3X8
U
T
AUDIO XLR PCB
R
S
M3X8
G
TRAFO UNIT
J
M3X8
F
502
G
H
M3X8 LOCK
V
SUPPLY UNIT
M3X8
H
M3X8
2.9X9.5
M3X6
M3X8
R
M3X8
J
U
3MX10
3MX10
Q
P
3MX10
503
V
3MX10
3MX10
O
N
Z
K
M3X8
E
SERVO PCB
M3X8
FRONT
E
F
M3X28
TRAYFRONT
131
D
B
D
M3X8
C
W
T
A
500
501
K
M3X8
Q
M3X8
M3X8
DECODER PCB
P
D
B
C
M3X8
S
O
N
Z
A
3,5MX12
FRONT
W
ENCOCER PCB
DAC PCB
M3X8
132
M3X8
133

FRONT

MECHANICAL PARTSLIST

101	4822 444 40524	TRAY FRONT
102	4822 444 40523	ALU TRAY FRONT
103	4822 410 60358	POWER BUTTON
104	4822 402 612407	LEFT ARM
106	4822 413 41699	REC LEVEL KNOB
107	4822 411 61856	PHONES VOLUME KNOB
108	4822 325 60317	GROMMET
109	4822 410 61724	ALU BUTTON SET
111	4822 410 90169	ALU COVER (BUTT)
112	4822 466 92936	DAMPER (L.ARM)
113	4822 411 61855	BALANCE KNOB
114	4822 444 40526	ALU FRONT
115	4822 444 40525	FRONT
116	4822 444 60812	COVER
118	4822 444 60813	COVER PLATE BUTTON
119	4822 444 60814	ALU DOOR
121	4822 460 20802	MASK
122	4822 450 61836	WINDOW
123	4822 410 61727	15F PUSH BUTTON
124	4822 381 11306	DIG/AUTO LENS
126	4822 492 71042	SPRING (R. ARM)
127	4822 492 71043	LEAF SPRING (R. ARM)
128	4822 402 61408	RIGHT ARM
129	4822 492 71041	SPRING (R. ARM)
131	4822 402 61409	MOVEMENT
132	4822 410 61726	4F PUSH BUTTON
133	4822 381 11305	RECORDING LENS
134	4822 410 61725	6F PUSH BUTTON
	4822 381 11307	PLAY LENS
	4822 321 10794	CORD SET
	4822 218 10325	REMOTE CONTROL RD5860/00
	4822 444 40528	SIDE PANEL LEFT
	4822 444 40527	SIDE PANEL RIGHT
	4822 498 10438	HANDLE

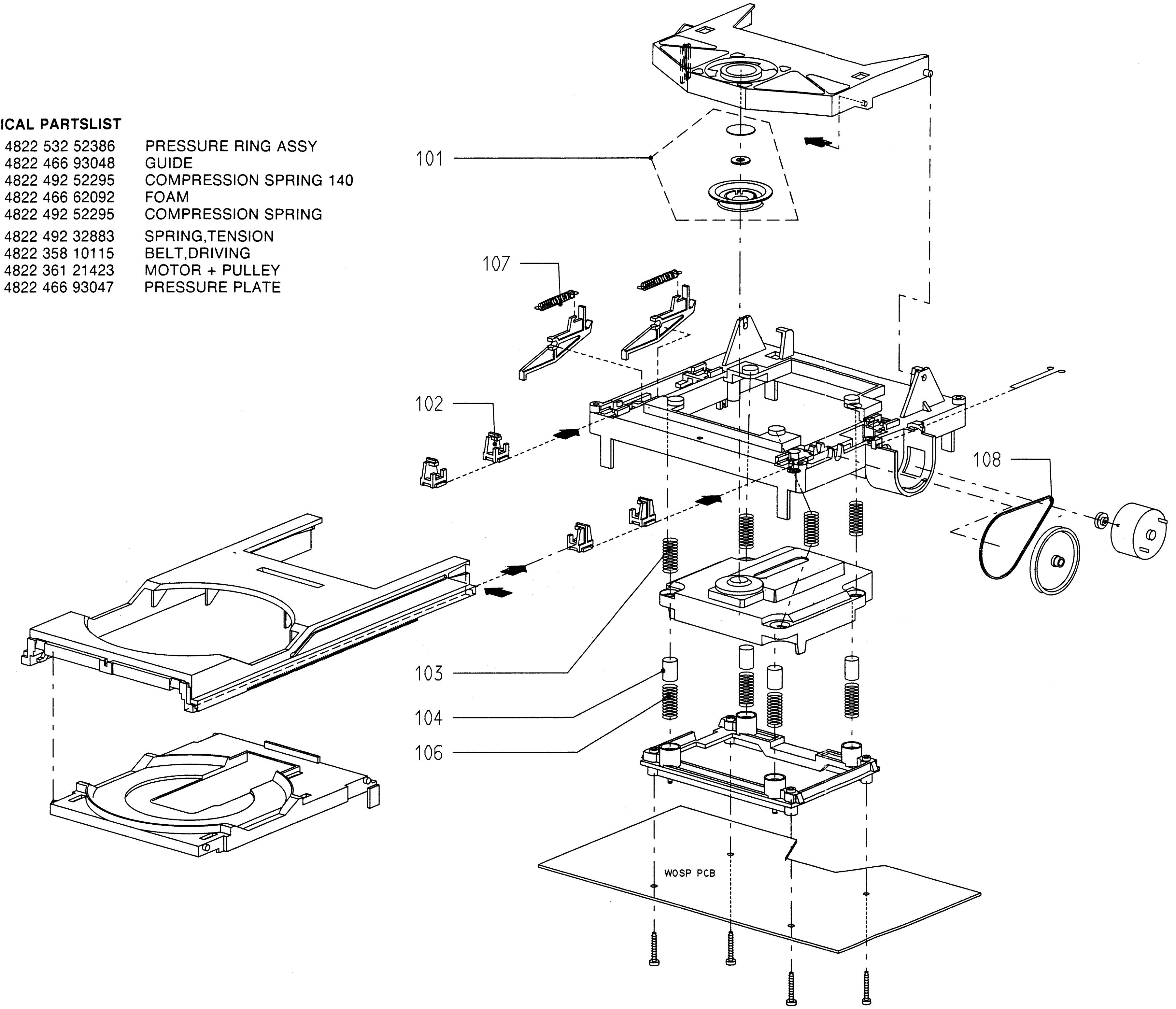

101
102
TRAY
3MX10
PCB MAINS SWITCH
CONTROL/LEV/HP PCB
3MX10
3MX10
CONTROL/LEV/HP PCB
121
122
115
123
C
116
107
108
FRAME
M3X8
109
C
111
112
118
D
D
132
133
134
3MX10
124
A
CONTROL/LEV/HP PCB
117
3MX10
126
127
128
A
3MX10
B
103
104
106
113
114
B
119
4NX12
129
131
M3X8
FRAME
4NX12

EVA.01299

LOADING + CDM

MECHANICAL PARTSLIST

101	4822 532 52386	PRESSURE RING ASSY
102	4822 466 93048	GUIDE
103	4822 492 52295	COMPRESSION SPRING 140
104	4822 466 62092	FOAM
106	4822 492 52295	COMPRESSION SPRING
107	4822 492 32883	SPRING,TENSION
108	4822 358 10115	BELT,DRIVING
	4822 361 21423	MOTOR + PULLEY
	4822 466 93047	PRESSURE PLATE



SERVO PANEL

Miscellaneous

1001	4822 214 51931	SERVO PCB

Crystal

1500	4822 242 73759	12MHz

-||-

2500	5322 122 32658	22pF 5% 50V
2501	5322 122 32658	22pF 5% 50V
2502	5322 124 21643	22µF 20% 40V
2503	4822 122 33809	22nF 20% 50V
2521	4822 122 33175	2,2nF 20% 50V
2522	4822 122 33809	22nF 20% 50V
2523	4822 122 33809	22nF 20% 50V
2524	5322 122 33809	22nF 20% 50V
2525	4822 122 33809	22nF 20% 50V
2526	5322 121 42661	330nF 5% 63V
2527	4822 122 33809	22nF 20% 50V
2528	4822 122 33809	22nF 20% 50V
2540	4822 122 33809	22nF 20% 50V
2541	4822 122 33496	100nF 10% 63V
2542	4822 122 33543	15nF 10% 50V
2543	4822 122 33496	100nF 10% 63V
2560	4822 122 32891	68nF 10% 63V
2561	4822 122 33891	3,3nF 10% 63V
2562	5322 122 32531	100pF 5% 50V
2563	4822 122 33177	10nF 20% 50V
2564	4822 122 32575	220pF 10% 500V
2565	4822 122 33809	22nF 20% 50V
2566	4822 122 33809	22nF 20% 50V
2567	4822 122 32542	47nF 10% 63V
2568	5322 122 32531	100pF 5% 50V
2580	4822 122 33809	22nF 20% 50V
2581	4822 122 33809	22nF 20% 50V
2582	5322 122 34123	1nF 10% 50V
2583	4822 122 33809	22nF 20% 50V
2584	4822 122 33809	22nF 20% 50V
2600	4822 122 33809	22nF 20% 50V
2601	4822 122 33809	22nF 20% 50V
2602	5322 122 32531	100pF 5% 50V
2603	4822 122 33496	100nF 10% 63V
2604	4822 121 41854	150nF 5% 63V
2605	4822 122 33175	2,2nF 20% 50V
2606	4822 122 33496	100nF 10% 63V
2620	5322 124 21643	22µF 20% 40V
2630	4822 121 51252	470nF 5% 63V
2640	4822 121 43901	4,7nF 5% 50V
2641	4822 121 43867	22nF 5% 50V
2642	5322 122 32448	10pF 5% 50V
2645	4822 122 33496	100nF 10% 63V
2650	4822 122 33177	10nF 20% 50V
2651	4822 122 33809	22nF 20% 50V
2652	4822 122 33809	22nF 20% 50V
2653	4822 122 33496	100nF 10% 63V
2654	4822 122 33496	100nF 10% 63V
2660	4822 124 40272	33µF 20% 16V
2661	4822 122 33809	22nF 20% 50V
2662	4822 124 40272	33µF 20% 16V
2663	4822 122 33809	22nF 20% 50V
2664	4822 124 41596	22µF 20% 50V
2665	4822 122 33809	22nF 20% 50V
2666	4822 124 41596	22µF 20% 50V
2667	4822 122 33809	22nF 20% 50V
2669	5322 124 21643	22µF 20% 40V
2671	5322 124 21643	22µF 20% 40V
2680	5322 122 31863	330pF 5% 50V

-||-

2681	5322 122 31863	330pF 5% 50V
2682	4822 122 33809	22nF 20% 50V
2710	4822 122 33809	22nF 20% 50V
2711	4822 122 33809	22nF 20% 50V
2712	5322 122 32658	22pF 5% 50V
2713	5322 122 32658	22pF 5% 50V
2730	4822 122 33809	22nF 20% 50V
2740	4822 122 31775	680pF 5% 50V
2751	5322 121 42386	100nF 5% 63V
2752	4822 121 43869	68nF 5% 50V
2770	5322 121 42661	330nF 5% 63V
2771	5322 122 32659	33pF 5% 50V
2772	4822 122 33809	22nF 20% 50V
2773	4822 122 33809	22nF 20% 50V
2774	4822 122 33809	22nF 20% 50V
2775	4822 122 33809	22nF 20% 50V
2790	4822 122 33809	22nF 20% 50V
2791	4822 122 33543	15nF 10% 50V
2792	4822 122 33809	22nF 20% 50V
2793	4822 122 33809	22nF 20% 50V
2794	4822 122 33496	100nF 10% 63V
2795	4822 121 43526	47nF 5% 100V
2810	4822 122 33809	22nF 20% 50V
2811	4822 122 33809	22nF 20% 50V
2812	4822 122 33809	22nF 20% 50V
2814	4822 122 33809	22nF 20% 50V
2830	4822 124 40272	33µF 20% 16V
2850	4822 122 33342	33nF 10% 50V
2851	5322 121 42661	330nF 5% 63V
2852	4822 122 33809	22nF 20% 50V
2853	4822 122 33809	22nF 20% 50V
2854	4822 122 33496	100nF 10% 63V
2870	4822 122 33809	22nF 20% 50V
2871	4822 122 33809	22nF 20% 50V
2872	5322 122 32531	100pF 5% 50V
2873	4822 122 32542	47nF 10% 63V
2874	4822 122 32575	220pF 10% 500V

-▭-

3500	4822 050 21002	1k 1% 0,6W
3501	4822 050 21002	1k 1% 0,6W
3502	4822 052 10108	1Ω 5% 0,33W
3503	4822 050 21003	10k 1% 0,6W
3504	4822 050 21003	10k 1% 0,6W
3506	4822 050 21003	10k 1% 0,6W
3507	4822 050 21003	10k 1% 0,6W
3508	4822 050 21003	10k 1% 0,6W
3509	4822 050 21003	10k 1% 0,6W
3510	4822 050 22203	22k 1% 0,6W
3511	4822 050 22203	22k 1% 0,6W
3512	4822 050 22203	22k 1% 0,6W
3513	4822 050 21002	1k 1% 0,6W
3514	4822 051 10101	100Ω 2% 0,25W
3515	4822 050 21003	10k 1% 0,6W
3516	4822 050 21003	10k 1% 0,6W
3517	4822 050 21003	10k 1% 0,6W
3518	4822 050 21003	10k 1% 0,6W
3519	4822 050 21003	10k 1% 0,6W
3520	4822 050 28203	82k 1% 0,6W
3521	4822 116 52235	1M 5% 0,5W
3522	4822 050 25604	560k 1% 0,6W
3523	4822 050 21804	180k 1% 0,6W
3524	4822 116 52235	1M 5% 0,5W
3525	4822 050 22704	270k 1% 0,6W
3526	4822 051 20274	270k 5% 0,1W
3527	4822 116 52272	330k 5% 0,5W

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3528	4822 050 21204	120k 1% 0,6W
3529	4822 050 24703	47k 1% 0,6W
3530	4822 051 20105	1M 5% 0,1W
3531	4822 116 52244	15k 5% 0,5W
3532	4822 051 20473	47k 5% 0,1W
3533	4822 050 25603	56k 1% 0,6W
3534	4822 051 20473	47k 5% 0,1W
3535	4822 051 20682	6k8 5% 0,1W
3542	4822 116 52234	100k 5% 0,5W
3545	4822 050 22003	20k 1% 0,6W
3546	4822 116 52264	27k 5% 0,5W
3547	4822 050 24704	470k 1% 0,6W
3550	4822 116 52235	1M 5% 0,5W
3551	4822 050 21003	10k 1% 0,6W
3552	4822 050 13303	33k 1% 0,4W
3560	4822 050 13303	33k 1% 0,4W
3561	4822 050 22204	220k 1% 0,6W
3562	4822 050 25603	56k 1% 0,6W
3563	4822 050 22204	220k 1% 0,6W
3564	4822 050 13303	33k 1% 0,4W
3565	4822 050 25603	56k 1% 0,6W
3566	4822 050 22203	22k 1% 0,6W
3567	4822 050 13303	33k 1% 0,4W
3568	4822 050 23902	3k9 1% 0,6W
3569	4822 050 23902	3k9 1% 0,6W
3570	4822 050 26803	68k 1% 0,6W
3571	4822 050 24703	47k 1% 0,6W
3572	4822 050 21504	150k 1% 0,6W
3573	4822 050 21804	180k 1% 0,6W
3574	4822 116 52264	27k 5% 0,5W
3575	4822 050 22203	22k 1% 0,6W
3576	4822 050 22203	22k 1% 0,6W
3577	4822 050 21204	120k 1% 0,6W
3578	4822 050 21504	150k 1% 0,6W
3580	4822 050 13303	33k 1% 0,4W
3581	4822 050 24703	47k 1% 0,6W
3582	4822 116 52235	1M 5% 0,5W
3583	4822 116 52224	470Ω 5%0,5W
3584	4822 052 10108	1Ω 5% 0,33W
3585	4822 052 10108	1Ω 5% 0,33W
3586	4822 050 21003	10k 1% 0,6W
3600	4822 050 22203	22k 1% 0,6W
3601	4822 050 21003	10k 1% 0,6W
3602	4822 050 22203	22k 1% 0,6W
3603	4822 050 22704	270k 1% 0,6W
3604	4822 050 21003	10k 1% 0,6W
3605	4822 050 22203	22k 1% 0,6W
3606	4822 050 21003	10k 1% 0,6W
3607	4822 050 24702	4k7 1% 0,6W
3608	4822 050 22203	22k 1% 0,6W
3609	4822 050 26803	68k 1% 0,6W
3610	4822 050 22204	220k 1% 0,6W
3611	4822 116 52234	100k 5% 0,5W
3612	4822 050 13303	33k 1% 0,4W
3614	4822 050 21203	12k 1% 0,6W
3615	4822 050 13303	33k 1% 0,4W
3616	4822 050 22203	22k 1% 0,6W
3617	4822 050 24704	470k 1% 0,6W
3620	4822 050 22203	22k 1% 0,6W
3621	4822 052 10108	1Ω 5% 0,33W
3622	4822 052 10108	1Ω 5% 0,33W
3623	4822 052 10108	1Ω 5% 0,33W
3624	4822 052 10108	1Ω 5% 0,33W
3625	4822 052 10108	1Ω 5% 0,33W
3626	4822 052 10108	1Ω 5% 0,33W
3630	4822 050 26804	680k 1% 0,6W
3631	4822 050 26804	680k 1% 0,6W

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3632	4822 050 26804	680k 1% 0,6W
3640	4822 050 28203	82k 1% 0,6W
3641	4822 050 13303	33k 1% 0,4W
3642	4822 116 52235	1M 5% 0,5W
3643	4822 050 25603	56k 1% 0,6W
3644	4822 116 52264	27k 5% 0,5W
3645	4822 116 52234	100k 5% 0,5W
3646	4822 050 24704	470k 1% 0,6W
3647	4822 116 52234	100k 5% 0,5W
3648	4822 116 52264	27k 5% 0,5W
3649	4822 052 10229	22Ω 5% 0,33W
3650	4822 050 23902	3k9 1% 0,6W
3651	4822 050 21203	12k 1% 0,6W
3652	4822 050 21203	12k 1% 0,6W
3653	4822 052 10108	1Ω 5% 0,33W
3654	4822 050 21203	12k 1% 0,6W
3655	4822 050 21203	12k 1% 0,6W
3656	4822 052 10108	1Ω 5% 0,33W
3657	4822 052 10229	22Ω 5% 0,33W
3680	4822 050 21003	10k 1% 0,6W
3681	4822 050 22204	220k 1% 0,6W
3682	4822 050 21002	1k 1% 0,6W
3683	4822 050 21002	1k 1% 0,6W
3684	4822 116 52244	15k 5% 0,5W
3685	4822 050 28203	82k 1% 0,6W
3686	4822 050 28203	82k 1% 0,6W
3687	4822 116 52244	15k 5% 0,5W
3688	4822 050 21002	1k 1% 0,6W
3689	4822 050 21002	1k 1% 0,6W
3690	4822 050 21003	10k 1% 0,6W
3691	4822 050 21003	10k 1% 0,6W
3692	4822 050 21002	1k 1% 0,6W
3693	4822 050 22203	22k 1% 0,6W
3694	4822 050 22203	22k 1% 0,6W
3695	4822 050 22203	22k 1% 0,6W
3696	4822 050 26803	68k 1% 0,6W
3697	4822 050 21002	1k 1% 0,6W
3710	4822 050 21002	1k 1% 0,6W
3711	4822 050 22204	220k 1% 0,6W
3712	4822 050 21003	10k 1% 0,6W
3713	4822 050 21002	1k 1% 0,6W
3715	4822 050 21003	10k 1% 0,6W
3740	4822 050 24304	430k 5% 0,125W
3741	4822 050 23903	39k 5% 0,125W
3742	4822 050 21203	12k 1% 0,6W
3743	4822 116 52244	15k 5% 0,5W
3744	4822 050 15602	5k6 1% 0,4W
3745	4822 050 15602	5k6 1% 0,4W
3750	4822 050 22704	270k 1% 0,6W
3751	4822 116 52224	470Ω 5% 0,5W
3752	4822 050 21204	120k 5% 0,125W
3753	4822 050 21203	12k 5% 0,125W
3754	4822 050 22704	270k 5% 0,125W
3755	4822 050 21002	1k 1% 0,6W
3756	4822 050 27504	750k 5% 0,125W
3757	4822 050 13303	33k 1% 0,4W
3770	4822 050 26803	68k 1% 0,6W
3771	4822 050 23903	39k 5% 0,125W
3772	4822 050 24703	47k 1% 0,6W
3773	4822 116 52244	15k 5% 0,5W
3774	4822 052 10108	1Ω 5% 0,33W
3775	4822 116 52224	470Ω 5% 0,5W
3776	4822 116 52224	470Ω 5% 0,5W
3777	4822 116 52244	15k 5% 0,5W
3778	4822 052 10108	1Ω 5% 0,33W
3779	4822 050 23903	39k 5% 0,125W

3791	4822 050 15602	5k6 1% 0,4W
3792	4822 050 21002	1k 1% 0,6W
3793	4822 050 13303	33k 1% 0,4W
3794	4822 050 13303	33k 1% 0,4W
3795	4822 050 21003	10k 1% 0,6W
3796	4822 116 52234	100k 5% 0,5W
3797	4822 116 52272	330k 5% 0,5W
3799	4822 116 52235	1M 5% 0,5W
3800	4822 116 52235	1M 5% 0,5W
3801	4822 116 52272	330k 5% 0,5W
3810	4822 050 21003	10k 1% 0,6W
3811	4822 050 21003	10k 1% 0,6W
3813	4822 050 21804	180k 1% 0,6W
3814	4822 050 21804	180k 1% 0,6W
3830	4822 116 52234	100k 5% 0,5W
3831	4822 050 28203	82k 1% 0,6W
3832	4822 050 21002	1k 1% 0,6W
3833	4822 116 52234	100k 5% 0,5W
3834	4822 050 22202	2k2 1% 0,6W
3835	4822 050 24703	47k 1% 0,6W
3836	4822 050 24703	47k 1% 0,6W
3837	4822 050 24703	47k 1% 0,6W
3838	4822 050 24703	47k 1% 0,6W
3850	4822 116 52244	15k 5% 0,5W
3851	4822 116 52234	100k 5% 0,5W
3852	4822 050 15602	5k6 1% 0,4W
3853	4822 116 52272	330k 5% 0,5W
3854	4822 050 21002	1k 1% 0,6W
3855	4822 050 21003	10k 1% 0,6W
3856	4822 050 21003	10k 1% 0,6W
3857	4822 050 24703	47k 1% 0,6W
3858	4822 050 21203	12k 1% 0,6W
3859	4822 050 21003	10k 1% 0,6W
3860	4822 050 21003	10k 1% 0,6W
3861	4822 050 24703	47k 1% 0,6W
3862	4822 050 21203	12k 1% 0,6W
3863	4822 050 24703	47k 1% 0,6W
3864	4822 052 10229	22Ω 5% 0,33W
3865	4822 052 10108	1Ω 5% 0,33W
3866	4822 052 10108	1Ω 5% 0,33W
3867	4822 050 22203	22k 1% 0,6W
3871	4822 116 52264	27k 5% 0,5W
3872	4822 050 26803	68k 1% 0,6W
3873	4822 116 52234	100k 5% 0,5W
3874	4822 050 22704	270k 1% 0,6W
3875	4822 050 22203	22k 1% 0,6W
3876	4822 050 21002	1k 1% 0,6W
3877	4822 050 21002	1k 1% 0,6W
3880	4822 050 24703	47k 1% 0,6W
3881	4822 050 22203	22k 1% 0,6W
3882	4822 116 52272	330k 5% 0,5W
3883	4822 050 24703	47k 1% 0,6W
3884	4822 050 22704	270k 1% 0,6W
3885	4822 050 24703	47k 1% 0,6W
3886	4822 050 21504	150k 1% 0,6W
4001	4822 051 10008	Chip jumper
4002	4822 051 10008	Chip jumper
4003	4822 051 10008	Chip jumper
4004	4822 051 10008	Chip jumper
4005	4822 051 10008	Chip jumper
4006	4822 051 10008	Chip jumper
4007	4822 051 10008	Chip jumper
4008	4822 051 10008	Chip jumper
4009	4822 051 10008	Chip jumper
4010	4822 051 10008	Chip jumper

4011	4822 051 10008	Chip jumper
4012	4822 051 10008	Chip jumper
4013	4822 051 10008	Chip jumper
4014	4822 051 10008	Chip jumper
4015	4822 051 10008	Chip jumper
4016	4822 051 10008	Chip jumper
4017	4822 051 10008	Chip jumper
4018	4822 051 10008	Chip jumper
4019	4822 051 10008	Chip jumper
4020	4822 051 10008	Chip jumper
4021	4822 051 10008	Chip jumper
4022	4822 051 10008	Chip jumper
4023	4822 051 10008	Chip jumper
4024	4822 051 10008	Chip jumper
4025	4822 051 10008	Chip jumper
4026	4822 051 10008	Chip jumper
4027	4822 051 10008	Chip jumper
4028	4822 051 10008	Chip jumper
4029	4822 051 10008	Chip jumper
4030	4822 051 10008	Chip jumper
4031	4822 051 10008	Chip jumper
4032	4822 051 10008	Chip jumper
4033	4822 051 10008	Chip jumper
4034	4822 051 10008	Chip jumper
4035	4822 051 10008	Chip jumper
4036	4822 051 10008	Chip jumper
4037	4822 051 10008	Chip jumper
4038	4822 051 10008	Chip jumper
4039	4822 051 10008	Chip jumper
4040	4822 051 10008	Chip jumper
4041	4822 051 10008	Chip jumper
4042	4822 051 10008	Chip jumper
4043	4822 051 10008	Chip jumper
4044	4822 051 10008	Chip jumper
4045	4822 051 10008	Chip jumper
4046	4822 051 10008	Chip jumper
4047	4822 051 10008	Chip jumper
4049	4822 051 10008	Chip jumper
4050	4822 051 10008	Chip jumper
4051	4822 051 10008	Chip jumper
4052	4822 051 10008	Chip jumper
4053	4822 051 10008	Chip jumper
4054	4822 051 10008	Chip jumper
4055	4822 051 10008	Chip jumper

6530	4822 130 30621	1N4148
6531	4822 130 30621	1N4148
6540	4822 130 30621	1N4148
6561	4822 130 30621	1N4148
6562	4822 130 30621	1N4148
6563	4822 130 30621	1N4148
6580	4822 130 30861	BZX79-C7V5
6581	4822 130 30861	BZX79-C7V5
6600	4822 130 30621	1N4148
6601	4822 130 30621	1N4148
6602	4822 130 30621	1N4148
6603	4822 130 30621	1N4148
6604	4822 130 30621	1N4148
6605	4822 130 30621	1N4148
6606	5322 130 34563	BZX79-C2V7
6680	4822 130 30621	1N4148
6681	4822 130 30621	1N4148
6740	4822 130 34174	BZX79-C4V7
6741	4822 130 34174	BZX79-C4V7
6750	4822 130 34174	BZX79-C4V7

6751	4822 130 34174	BZX79-C4V7
6790	4822 130 30621	1N4148
6791	4822 130 30621	1N4148
6792	4822 130 30621	1N4148
6830	4822 130 30621	1N4148
6831	4822 130 30621	1N4148
6832	4822 130 30621	1N4148
6833	4822 130 30621	1N4148
6850	4822 130 34174	BZX79-C4V7
6851	4822 130 34174	BZX79-C4V7
6870	4822 130 31981	BZX79-C3V9
6871	4822 130 31981	BZX79-C3V9
6872	4822 130 31981	BZX79-C3V9
6873	4822 130 31981	BZX79-C3V9
6874	4822 130 30621	1N4148
7500	4822 209 30737	SC87C51CCN40
7501	4822 209 30731	MC74HC03AD
7520	4822 209 30725	MC34002BD
7521	5322 209 82941	LM358D
7522	4822 209 30734	MC74HC4053N
7540	4822 209 30733	MC74HC164N
7541	4822 209 30725	MC34002BD
7542	5322 130 44656	BC264D
7560	4822 209 30734	MC74HC4053N
7561	4822 130 61207	BC848
7562	5322 130 42012	BC858
7563	5322 209 70225	LM393D
7580	5322 130 44656	BC264D
7581	5322 130 44647	BC368
7582	5322 130 44593	BC369
7600	5322 130 42012	BC858
7601	4822 209 30725	MC34002BD
7602	4822 130 61207	BC848
7630	4822 130 61207	BC848
7640	5322 130 44656	BC264D
7641	5322 130 44656	BC264D
7642	4822 209 72587	TCA0372DP2
7680	4822 209 30732	LM319D
7681	4822 130 61207	BC848
7682	5322 130 42012	BC858
7683	4822 130 61207	BC848
7684	5322 130 42012	BC858
7685	4822 130 61207	BC848
7711	4822 130 61207	BC848
7712	4822 130 61207	BC848
7713	4822 209 30739	MC74HC04AD
7730	4822 209 30734	MC74HC4053N
7731	5322 209 73011	PC74HC4520P
7740	4822 209 30734	MC74HC4053N
7741	4822 209 30738	TL084CN
7750	4822 209 30734	MC74HC4053N
7770	4822 130 61207	BC848
7771	5322 130 42012	BC858
7772	4822 130 40995	BD438
7773	4822 130 40982	BD437
7790	4822 209 30733	MC74HC164N
7791	4822 209 30738	TL084CN
7792	5322 130 42012	BC858
7810	4822 209 30739	MC74HC04AD
7811	4822 209 30734	MC74HC4053N
7830	4822 209 70941	MC34084P
7850	5322 130 42012	BC858
7851	5322 130 42012	BC858
7852	4822 209 72587	TCA0372DP2
7870	5322 209 70225	LM393D
7871	4822 209 30734	MC74HC4053N
7880	5322 130 42012	BC858
7881	4822 130 61207	BC848

ENCODER PANEL

Miscellaneous

1002	4822 214 51932	ENCODER PCB

Crystal

1424	4822 242 71349	11,2896 MHz
1480	4822 242 73759	12MHz

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2300	5322 122 32531	100pF 5% 50V
2301	5322 122 32531	100pF 5% 50V
2304	5322 122 32531	100pF 5% 50V
2305	5322 122 32531	100pF 5% 50V
2306	4822 124 41525	100μF 20% 25V
2307	4822 124 41525	100μF 20% 25V
2308	4822 122 33496	100nF 10% 63V
2309	4822 122 33496	100nF 10% 63V
2340	4822 122 33496	100nF 10% 63V
2341	4822 122 33496	100nF 10% 63V
2342	4822 122 33496	100nF 10% 63V
2343	4822 122 33496	100nF 10% 63V
2344	4822 122 33496	100nF 10% 63V
2345	4822 122 33496	100nF 10% 63V
2346	4822 122 33496	100nF 10% 63V
2347	4822 122 33809	22nF 20% 50V
2348	4822 122 33809	22nF 20% 50V
2349	4822 122 33809	22nF 20% 50V
2350	4822 122 33809	22nF 20% 50V
2351	4822 124 40272	33μF 20% 16V
2352	4822 124 40272	33μF 20% 16V
2353	4822 124 40272	33μF 20% 16V
2354	4822 124 40272	33μF 20% 16V
2355	4822 124 40272	33μF 20% 16V
2356	4822 121 43866	10nF 5% 50V
2357	4822 121 43866	10nF 5% 50V
2358	4822 122 33177	10nF 20% 50V
2359	4822 122 33177	10nF 20% 50V
2360	4822 124 40435	10μF 20% 50V
2361	4822 124 41576	2,2μF 20% 50V
2370	4822 122 33809	22nF 20% 50V
2371	4822 124 40272	33μF 20% 16V
2372	4822 122 33809	22nF 20% 50V
2373	4822 124 40272	33μF 20% 16V
2374	4822 122 33809	22nF 20% 50V
2375	4822 124 40272	33μF 20% 16V
2376	4822 124 40272	33μF 20% 16V
2377	4822 122 33809	22nF 20% 50V
2378	4822 122 33809	22nF 20% 50V
2379	4822 124 40272	33μF 20% 16V
2380	4822 121 51356	180nF 10% 63V
2381	4822 124 41576	2,2μF 20% 50V
2382	5322 122 32448	10pF 5% 50V
2383	4822 122 32575	220pF 10% 500V
2384	5322 122 32659	33pF 5% 50V
2385	5322 122 32659	33pF 5% 50V
2386	4822 122 33809	22nF 20% 50V
2387	4822 122 33809	22nF 20% 50V
2400	4822 122 33809	22nF 20% 50V
2401	5322 122 32658	22pF 5% 50V
2402	5322 122 32531	100pF 5% 50V
2403	5322 122 32531	100pF 5% 50V
2404	5322 122 32531	100pF 5% 50V
2420	4822 122 33809	22nF 20% 50V
2421	4822 124 40272	33μF 20% 16V
2422	4822 122 33809	22nF 20% 50V
2423	4822 124 40272	33μF 20% 16V
2424	4822 121 43897	1nF 5% 50V
2425	4822 121 51252	470nF 5% 63V

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2426	4822 121 43996	33nF 5% 63V
2427	4822 122 33809	22nF 20% 50V
2428	4822 124 40272	33μF 20% 16V
2429	4822 126 10326	180pF 5% 50V
2430	4822 126 10326	180pF 5% 50V
2431	5322 122 32531	100pF 5% 50V
2432	4822 124 40435	10μF 20% 50V
2433	4822 122 33496	100nF 10% 63V
2434	4822 122 33496	100nF 10% 63V
2435	4822 122 33496	100nF 10% 63V
2436	4822 122 33496	100nF 10% 63V
2452	4822 124 41527	47μF 25V
2453	4822 122 33809	22nF 20% 50V
2454	4822 122 33809	22nF 20% 50V
2455	4822 124 40433	47μF 20% 25V
2457	5322 122 32531	100pF 5% 50V
2458	4822 124 41576	2,2μF 20% 50V
2459	4822 122 33809	22nF 20% 50V
2460	4822 122 33809	22nF 20% 50V
2461	4822 122 33809	22nF 20% 50V
2462	4822 124 40272	33μF 20% 16V
2480	4822 122 33809	22nF 20% 50V
2481	4822 124 40272	33μF 20% 16V
2482	4822 124 40272	33μF 20% 16V
2483	5322 122 32658	22pF 5% 50V
2484	5322 122 32658	22pF 5% 50V
2485	4822 122 33809	22nF 20% 50V
2486	4822 124 40272	33μF 20% 16V
2487	4822 122 33809	22nF 20% 50V
2488	4822 122 33809	22nF 20% 50V
2489	4822 122 33809	22nF 20% 50V
2490	4822 122 33809	22nF 20% 50V
2491	4822 122 33809	22nF 20% 50V
2492	4822 122 33809	22nF 20% 50V
2493	4822 122 33809	22nF 20% 50V
2494	4822 122 33809	22nF 20% 50V
2495	4822 122 33809	22nF 20% 50V
2498	5322 122 31866	6,8nF 10% 63V
2499	5322 122 31866	6,8nF 10% 63V
2500	5322 122 31866	6,8nF 10% 63V
2501	5322 122 32838	82nF 10% 63V
2502	4822 122 33543	15nF 10% 50V
2503	4822 122 33543	15nF 10% 50V
2504	4822 122 33809	22nF 20% 50V
2505	4822 122 33809	22nF 20% 50V
2540	5322 122 32531	100pF 5% 50V
2750	5322 122 32448	10pF 5% 50V
2751	5322 122 32448	10pF 5% 50V
2752	4822 124 41576	2,2μF 20% 50V
2753	4822 124 41576	2,2μF 20% 50V
2754	4822 124 41577	4,7μF 20% 50V
2755	4822 124 41577	4,7μF 20% 50V
2756	5322 122 32448	10pF 5% 50V
2757	5322 122 32448	10pF 5% 50V
2758	4822 122 33809	22nF 20% 50V
2759	4822 122 33809	22nF 20% 50V
2760	4822 122 33809	22nF 20% 50V
2761	4822 122 33809	22nF 20% 50V
2762	4822 124 40272	33μF 20% 16V
2763	4822 124 40272	33μF 20% 16V
2764	4822 124 40272	33μF 20% 16V
2765	4822 124 40272	33μF 20% 16V
2766	5322 116 80853	560pF 5% 63V
2767	5322 116 80853	560pF 5% 63V
2768	5322 116 80853	560pF 5% 63V
2769	5322 116 80853	560pF 5% 63V
2770	4822 122 32139	12pF 5% 63V
2771	4822 122 32139	12pF 5% 63V

3029	4822 050 22203	22k 1% 0,6W
3300	4822 051 20104	100k 5% 0,1W
3301	4822 051 20104	100k 5% 0,1W
3302	4822 051 20104	100k 5% 0,1W
3303	4822 051 20104	100k 5% 0,1W
3304	4822 050 21002	1k 1% 0,6W
3305	4822 050 21002	1k 1% 0,6W
3306	4822 050 21002	1k 1% 0,6W
3307	4822 050 21002	1k 1% 0,6W
3308	4822 052 10339	33Ω 5% 0,33W
3309	4822 052 10339	33Ω 5% 0,33W
3340	4822 052 10478	4Ω7 5% 0,33W
3341	4822 052 10478	4Ω7 5% 0,33W
3342	4822 052 10478	4Ω7 5% 0,33W
3343	4822 051 20479	47Ω 5% 0,1W
3344	4822 051 20479	47Ω 5% 0,1W
3345	4822 052 10478	4Ω7 5% 0,33W
3346	4822 051 20223	22k 5% 0,1W
3347	4822 051 20223	22k 5% 0,1W
3348	4822 051 20472	4k7 5% 0,1W
3349	4822 052 10478	4Ω7 5% 0,33W
3350	4822 052 10478	4Ω7 5% 0,33W
3351	4822 051 20479	47Ω 5% 0,1W
3352	4822 051 20479	47Ω 5% 0,1W
3354	4822 052 10478	4Ω7 5% 0,33W
3370	4822 052 10478	4Ω7 5% 0,33W
3371	4822 052 10478	4Ω7 5% 0,33W
3372	4822 050 21003	10k 1% 0,6W
3373	4822 050 21003	10k 1% 0,6W
3374	4822 050 21003	10k 1% 0,6W
3377	4822 052 10478	4Ω7 5% 0,33W
3378	4822 052 10108	1Ω 5% 0,33W
3379	4822 051 20391	390Ω 5% 0,1W
3380	4822 051 20121	120Ω 5% 0,1W
3381	4822 050 21003	10k 1% 0,6W
3382	4822 051 20274	270k 5% 0,1W
3383	4822 051 20274	270k 5% 0,1W
3385	4822 051 20101	100Ω 5% 0,1W
3386	4822 051 20101	100Ω 5% 0,1W
3387	4822 052 10478	4Ω7 5% 0,33W
3400	4822 052 10478	4Ω7 5% 0,33W
3401	4822 051 20101	100Ω 5% 0,1W
3402	4822 051 20101	100Ω 5% 0,1W
3403	4822 051 20101	100Ω 5% 0,1W
3404	4822 051 20101	100Ω 5% 0,1W
3420	4822 052 10478	4Ω7 5% 0,33W
3421	4822 051 20103	10k 5% 0,1W
3422	4822 052 10478	4Ω7 5% 0,33W
3423	4822 050 23001	300Ω 1% 0,6W
3424	4822 051 20103	10k 5% 0,1W
3425	4822 051 20104	100k 5% 0,1W
3426	4822 051 20104	100k 5% 0,1W
3427	4822 051 20331	330Ω 5% 0,1W
3428	4822 051 20274	270k 5% 0,1W
3429	4822 051 20152	1k5 5% 0,1W
3430	4822 051 20682	6k8 5% 0,1W
3431	4822 051 20272	2k7 5% 0,1W
3432	4822 051 20682	6k8 5% 0,1W
3433	4822 051 20479	47Ω 5% 0,1W
3434	4822 051 20273	47k 5% 0,1W
3435	4822 051 20103	10k 5% 0,1W
3436	4822 051 20759	75Ω 5% 0,1W
3437	4822 050 21002	1k 1% 0,6W
3438	4822 051 20105	1M 5% 0,1W
3439	4822 051 20223	22k 5% 0,1W

3440	4822 051 20473	47k 5% 0,1W
3441	4822 051 20103	10k 5% 0,1W
3442	4822 051 20223	22k 5% 0,1W
3443	4822 052 10478	4Ω7 5% 0,33W
3444	4822 051 20223	22k 5% 0,1W
3445	4822 051 20223	22k 5% 0,1W
3446	4822 051 20473	47k 5% 0,1W
3447	4822 051 20473	47k 5% 0,1W
3448	4822 051 20103	10k 5% 0,1W
3449	4822 051 20101	100Ω 5% 0,1W
3450	4822 050 22403	24k 1% 0,6W
3451	4822 050 24302	4k3 1% 0,6W
3452	4822 050 21304	130k 1% 0,6W
3453	4822 052 10339	33Ω 5% 0,33W
3454	4822 052 10339	33Ω 5% 0,33W
3455	4822 050 22403	24k 1% 0,6W
3456	4822 050 24302	4k3 1% 0,6W
3457	4822 050 21304	130k 1% 0,6W
3458	4822 050 21002	1k 1% 0,6W
3459	4822 051 20822	8k2 5% 0,1W
3460	4822 051 20105	1M 5% 0,1W
3461	4822 051 20222	2k2 5% 0,1W
3462	4822 052 10108	1Ω 5% 0,33W
3463	4822 051 20222	2k2 5% 0,1W
3464	4822 051 20103	10k 5% 0,1W
3480	4822 052 10108	1Ω 5% 0,33W
3481	4822 051 20824	820k 5% 0,1W
3482	4822 051 20103	10k 5% 0,1W
3484	4822 050 21002	1k 1% 0,6W
3485	4822 051 20223	22k 5% 0,1W
3486	4822 050 22203	22k 1% 0,6W
3487	4822 050 22203	22k 1% 0,6W
3488	4822 050 22203	22k 1% 0,6W
3489	4822 052 10478	4Ω7 5% 0,33W
3490	4822 051 20223	22k 5% 0,1W
3491	4822 051 20101	100Ω 5% 0,1W
3492	4822 051 20101	100Ω 5% 0,1W
3493	4822 051 10102	1k 2% 0,25W
3494	4822 051 10101	100Ω 2% 0,25W
3495	4822 050 22203	22k 1% 0,6W
3496	4822 050 21002	1k 1% 0,6W
3497	4822 050 22203	22k 1% 0,6W
3498	4822 051 10102	1k 2% 0,25W
3499	4822 051 20223	22k 5% 0,1W
3500	4822 051 20223	22k 5% 0,1W
3501	4822 050 22203	22k 1% 0,6W
3502	4822 050 22203	22k 1% 0,6W
3503	4822 050 21002	1k 1% 0,6W
3504	4822 051 20103	10k 5% 0,1W
3505	4822 051 20223	22k 5% 0,1W
3508	4822 050 22203	22k 1% 0,6W
3509	4822 050 22203	22k 1% 0,6W
3510	4822 050 22203	22k 1% 0,6W
3511	4822 050 22203	22k 1% 0,6W
3512	4822 050 22203	22k 1% 0,6W
3513	4822 050 21002	1k 1% 0,6W
3514	4822 050 21002	1k 1% 0,6W
3515	4822 050 21002	1k 1% 0,6W
3516	4822 051 20472	4k7 5% 0,1W
3517	4822 051 20153	15k 5% 0,1W
3518	4822 051 20272	2k7 5% 0,1W
3519	4822 051 20473	47k 5% 0,1W
3520	4822 050 21002	1k 1% 0,6W
3521	4822 051 10102	1k 2% 0,25W
3522	4822 050 23483	34k8 1% 0,6W

3523	4822 050 23483	34k8 1% 0,6W
3524	4822 050 21783	17k8 1% 0,6W
3525	4822 050 28662	8k66 1% 0,6W
3526	4822 050 21003	10k 1% 0,6W
3527	4822 050 21003	10k 1% 0,6W
3528	4822 050 21002	1k 1% 0,6W
3529	4822 050 21003	10k 1% 0,6W
3530	4822 050 21002	1k 1% 0,6W
3531	4822 050 21003	10k 1% 0,6W
3532	4822 050 21002	1k 1% 0,6W
3533	4822 050 21003	10k 1% 0,6W
3534	4822 050 21002	1k 1% 0,6W
3535	4822 050 21003	10k 1% 0,6W
3536	4822 051 20103	10k 5% 0,1W
3537	4822 051 20103	10k 5% 0,1W
3538	4822 051 20824	820k 5% 0,1W
3539	4822 051 20103	10k 5% 0,1W
3540	4822 051 20223	22k 5% 0,1W
3541	4822 051 20473	47k 5% 0,1W
3542	4822 051 20183	18k 5% 0,1W
3543	4822 051 20103	10k 5% 0,1W
3544	4822 051 20103	10k 5% 0,1W
3545	4822 051 20391	390Ω 5% 0,1W
3550	4822 051 10101	100Ω 2% 0,25W
3551	4822 051 10101	100Ω 2% 0,25W
3552	4822 052 10478	4Ω7 5% 0,33W
3553	4822 051 20103	10k 5% 0,1W
3554	4822 050 22203	22k 1% 0,6W
3555	4822 050 22203	22k 1% 0,6W
3556	4822 050 22203	22k 1% 0,6W
3557	4822 050 22203	22k 1% 0,6W
3750	4822 050 21004	100k 1% 0,6W
3751	4822 050 21004	100k 1% 0,6W
3752	4822 050 21004	100k 1% 0,6W
3753	4822 050 21004	100k 1% 0,6W
3754	4822 050 21004	100k 1% 0,6W
3755	4822 050 21004	100k 1% 0,6W
3756	4822 050 22004	100k 1% 0,6W
3757	4822 050 22004	100k 1% 0,6W
3758	4822 050 22004	100k 1% 0,6W
3759	4822 050 22004	100k 1% 0,6W
3760	4822 051 20103	10k 5% 0,1W
3761	4822 051 20103	10k 5% 0,1W
3762	4822 051 20394	390k 5% 0,1W
3763	4822 051 20394	390k 5% 0,1W
3764	4822 051 20472	4k7 5% 0,1W
3765	4822 051 20472	4k7 5% 0,1W
3766	4822 051 20472	4k7 5% 0,1W
3767	4822 051 20472	4k7 5% 0,1W
3768	4822 051 20183	18k 5% 0,1W
3769	4822 051 20183	18k 5% 0,1W
3770	4822 051 20183	18k 5% 0,1W
3771	4822 051 20183	18k 5% 0,1W
3772	4822 052 10339	33Ω 5% 0,33W
3773	4822 052 10339	33Ω 5% 0,33W
3774	4822 052 10339	33Ω 5% 0,33W
3775	4822 052 10339	33Ω 5% 0,33W
4400	4822 051 10008	Chip jumper
4401	4822 051 10008	Chip jumper
4481	4822 051 10008	Chip jumper
4482	4822 051 10008	Chip jumper
4484	4822 051 10008	Chip jumper

5340	4822 157 51235	COIL 4,7μH 10%

6420	4822 130 30862	BZX79-C9V1
6482	4822 130 31983	BAT85
6483	4822 130 31983	BAT85
6540	4822 130 30621	1N4148
6541	4822 130 30621	1N4148
6750	4822 130 30621	1N4148
6751	4822 130 30621	1N4148
6752	4822 130 30621	1N4148
6753	4822 130 30621	1N4148
6754	4822 130 30621	1N4148
6755	4822 130 30621	1N4148
6756	4822 130 30621	1N4148
6757	4822 130 30621	1N4148
6758	4822 130 30621	1N4148
6759	4822 130 30621	1N4148
6760	4822 130 34174	BZX79-C4V7
6761	4822 130 34174	BZX79-C4V7
7300	5322 209 86234	NE5532N
7340	4822 209 30728	AK5326
7341	4822 209 30736	MC74HC163D
7342	4822 209 30736	MC74HC163D
7343	4822 209 30739	MC74HC04AD
7344	4822 209 30721	MC74HC74AD
7345	4822 130 42696	BC818-25
7346	4822 130 61207	BC848
7347	5322 209 11222	MC7905CT
7370	4822 209 30716	CDCE
7371	4822 209 63925	FCB61C65L-70T
7372	4822 209 30726	MC74HC4046AD
7373	4822 209 83163	LM833N
7374	4822 209 30735	MC74HC175D
7375	4822 209 30719	MC74HC00AD
7400	4822 209 30703	MC74HC157AD
7420	4822 209 30718	M51581FP
7421	4822 130 31129	BB212
7422	5322 209 82941	LM358D
7423	4822 130 61207	BC848
7424	5322 130 42012	BC858
7425	4822 209 30734	MC74HC4053N
7426	4822 130 61207	BC848
7427	4822 130 61207	BC848
7450	4822 209 30717	WPC
7451	4822 209 30732	LM319D
7452	4822 209 83163	LM833N
7480	4822 209 30715	MC68HC11F1
7481	4822 209 30729	AM27C512-150PC
7482	4822 209 30727	X28C64P-20
7483	4822 209 30722	MC74HC139AD
7484	4822 209 30719	MC74HC00AD
7485	4822 209 30741	SAD1009T/03
7486	4822 209 30724	MC74HC374ADW
7487	4822 209 30724	MC74HC374ADW
7488	4822 209 30723	MC74HC373ADW
7490	5322 130 42012	BC858
7491	4822 209 70941	MC34084P
7492	5322 209 81331	MC7805ACT
7542	4822 130 44197	BC558B
7543	4822 130 61207	BC848
7750	4822 209 70941	MC34084P
7751	4822 209 83163	LM833N
7752	4822 130 61207	BC848
7753	4822 130 61207	BC848
7754	4822 130 61207	BC848
7755	4822 130 61207	BC848

Miscellaneous

1140	4822 276 12339	SWITCH,PUSHBUT.
1170	4822 218 21019	REMOTE CONTROL PLT102

HF transformer

1180	4822 148 80281	HF TRANSFORMER

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2090	4822 122 33175	2,2nF 20% 50V
2091	4822 124 40272	33µF 20% 16V
2092	4822 122 33809	22nF 20% 50V
2093	4822 121 51252	470nF 5% 63V
2094	4822 124 41576	2,2µF 20% 50V
2095	4822 124 40272	33µF 20% 16V
2096	4822 122 33809	22nF 20% 50V
2097	5322 122 32452	47pF 5% 50V
2098	4822 122 33809	22nF 20% 50V
2099	5322 122 32531	100pF 5% 50V
2140	4822 122 33809	22nF 20% 50V
2141	5322 122 32659	33pF 5% 50V
2142	5322 122 32659	33pF 5% 50V
2160	4822 122 33172	390pF 5% 50V
2161	4822 122 33172	390pF 5% 50V
2162	4822 122 33172	390pF 5% 50V
2163	4822 122 33172	390pF 5% 50V
2170	4822 122 33809	22nF 20% 50V
2171	4822 124 40272	33µF 20% 16V
2180	4822 122 33105	56nF 10% 63V
2181	4822 122 33105	56nF 10% 63V
2182	4822 122 33496	100nF 10% 63V
2190	4822 124 40272	33µF 20% 16V
2191	4822 122 33496	100nF 10% 63V
2192	5322 122 32659	33pF 5% 50V
2196	5322 122 32659	33pF 5% 50V
2230	4822 122 10166	22nF 30% 16V
2231	5322 122 32531	100pF 5% 50V
2232	5322 122 32531	100pF 5% 50V
2250	4822 122 33809	22nF 20% 50V
2260	4822 122 33809	22nF 20% 50V
2261	4822 122 33809	22nF 20% 50V
2262	4822 122 33809	22nF 20% 50V
2263	4822 122 33809	22nF 20% 50V
2264	4822 124 41525	100µF 20% 25V
2265	4822 124 41525	100µF 20% 25V
2266	4822 124 41525	100µF 20% 25V
2267	4822 124 41525	100µF 20% 25V
2268	4822 124 22339	100µF 20% 16V Bipolar
2269	4822 124 22339	100µF 20% 16V Bipolar
2280	4822 122 10166	22nF 30% 16V

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3090	4822 051 20222	2k2 5% 0,1W
3091	4822 051 20223	22k 5% 0,1W
3092	4822 051 20223	22k 5% 0,1W
3093	4822 051 20223	22k 5% 0,1W
3094	4822 052 10108	1Ω 5% 0,33W
3095	4822 051 20103	10k 5% 0,1W
3097	4822 051 20759	75Ω 5% 0,1W
3098	4822 051 20392	3k9 5% 0,1W
3099	4822 051 20912	9k1 5% 0,1W
3100	4822 051 20162	1k6 5% 0,1W
3101	4822 052 10478	4Ω7 5% 0,33W
3102	4822 051 20223	22k 5% 0,1W
3103	4822 051 20223	22k 5% 0,1W
3104	4822 051 20223	22k 5% 0,1W
3105	4822 051 20223	22k 5% 0,1W
3106	4822 051 10102	1k 2% 0,25W
3108	4822 051 20101	100Ω 5% 0,1W
3129	4822 051 20223	22k 5% 0,1W
3130	4822 051 20223	22k 5% 0,1W
3140	4822 052 10478	4Ω7 5% 0,33W
3141	4822 051 20223	22k 5% 0,1W
3142	4822 051 20472	4k7 5% 0,1W
3143	4822 051 20101	100Ω 5% 0,1W
3144	4822 051 20101	100Ω 5% 0,1W
3159	4822 051 20563	56k 5% 0,1W
3160	4822 051 20101	100Ω 5% 0,1W
3161	4822 051 20101	100Ω 5% 0,1W
3162	4822 051 20101	100Ω 5% 0,1W
3163	4822 051 20101	100Ω 5% 0,1W
3164	4822 051 20122	1k2 5% 0,1W
3165	4822 051 20122	1k2 5% 0,1W
3166	4822 051 20122	1k2 5% 0,1W
3167	4822 051 20122	1k2 5% 0,1W
3168	4822 051 20101	100Ω 5% 0,1W
3169	4822 051 20272	2k7 5% 0,1W
3170	4822 052 10478	4Ω7 5% 0,33W
3171	4822 051 20822	8k2 5% 0,1W
3180	4822 051 20561	560Ω 5% 0,1W
3181	4822 051 20621	620Ω 5% 0,1W
3190	4822 052 10108	1Ω 5% 0,33W
3191	4822 051 20101	100Ω 5% 0,1W
3195	4822 051 20101	100Ω 5% 0,1W
3196	4822 051 20103	10k 5% 0,1W
3197	4822 051 20223	22k 5% 0,1W
3198	4822 051 20472	4k7 5% 0,1W
3199	4822 051 20103	10k 5% 0,1W
3230	4822 051 10101	100Ω 2% 0,25W
3231	4822 052 10478	4Ω7 5% 0,33W
3232	4822 051 20223	22k 5% 0,1W
3233	4822 051 20223	22k 5% 0,1W
3234	4822 051 20223	22k 5% 0,1W
3235	4822 051 20101	100Ω 5% 0,1W
3236	4822 051 20101	100Ω 5% 0,1W
3237	4822 051 20223	22k 5% 0,1W
3250	4822 052 10478	4Ω7 5% 0,33W
3251	4822 051 10102	1k 2% 0,25W
3260	4822 050 21203	12k 1% 0,6W
3261	4822 050 21203	12k 1% 0,6W
3262	4822 050 21003	12k 1% 0,6W
3263	4822 050 21003	12k 1% 0,6W
3272	4822 052 10339	33Ω 5% 0,33W
3273	4822 052 10339	33Ω 5% 0,33W
3274	4822 052 10339	33Ω 5% 0,33W
3275	4822 052 10339	33Ω 5% 0,33W
3276	4822 051 20103	10k 5% 0,1W
3277	4822 051 20103	10k 5% 0,1W
3280	4822 051 20223	22k 5% 0,1W
3281	4822 052 10478	4Ω7 5% 0,33W
3282	4822 051 20223	22k 5% 0,1W
3801	4822 051 10008	Chip jumper
3802	4822 051 10008	Chip jumper
3803	4822 051 10008	Chip jumper
3804	4822 051 10008	Chip jumper
3805	4822 051 10008	Chip jumper
3806	4822 051 10008	Chip jumper
3807	4822 051 10008	Chip jumper
3808	4822 051 10008	Chip jumper
3809	4822 051 10008	Chip jumper
3810	4822 051 10008	Chip jumper
3812	4822 051 10008	Chip jumper

3813	4822 051 10008	Chip jumper
3814	4822 051 10008	Chip jumper
3815	4822 051 10008	Chip jumper
3816	4822 051 10008	Chip jumper
3817	4822 051 10008	Chip jumper
3818	4822 051 10008	Chip jumper
3819	4822 051 10008	Chip jumper
3820	4822 051 10008	Chip jumper
3821	4822 051 10008	Chip jumper
3822	4822 051 10008	Chip jumper
3823	4822 051 10008	Chip jumper
3825	4822 051 10008	Chip jumper
3828	4822 051 10008	Chip jumper
3845	4822 051 10008	Chip jumper
4160	4822 051 10008	Chip jumper
4190	4822 051 10008	Chip jumper
4191	4822 051 10008	Chip jumper
4192	4822 051 10008	Chip jumper
4193	4822 051 10008	Chip jumper
4230	4822 051 10008	Chip jumper
4260	4822 051 10008	Chip jumper
4261	4822 051 10008	Chip jumper
4262	4822 051 10008	Chip jumper
4263	4822 051 10008	Chip jumper
4264	4822 051 10008	Chip jumper

5160	4822 157 60363	COIL

6141	4822 130 42696	BC818-25
6160	4822 130 31981	BZX79-C3V9
6161	4822 130 30621	1N4148
6162	4822 130 30621	1N4148
7090	4822 209 61759	SAA7310GP/H5
7091	4822 209 70422	MN4264-15
7092	4822 130 42131	BF550
7140	4822 209 30719	MC74HC00AD
7160	4822 130 42696	BC818-25
7161	4822 130 42696	BC818-25
7162	4822 130 42696	BC818-25
7163	4822 130 42696	BC818-25
7164	5322 130 42012	BC858
7190	4822 209 72545	SAA7220P/B
7191	4822 130 61207	BC848
7192	4822 130 42696	BC818-25
7230	4822 209 30703	MC74HC157AD
7250	4822 209 30721	MC74HC74AD
7260	5322 209 86234	NE5532N
7261	5322 209 86234	NE5532N
7280	4822 209 30719	MC74HC00AD

LEVEL AND BALANCE PANEL

2556	4822 124 22339	100µF 20% 16V Bipolar
2557	4822 124 22339	100µF 20% 16V Bipolar
2558	4822 124 22339	100µF 20% 16V Bipolar
2559	4822 124 22339	100µF 20% 16V Bipolar
2560	4822 124 40433	47µF 20% 25V
2561	4822 124 40433	47µF 20% 25V
2562	4822 122 10166	22nF 30% 16V
2563	4822 122 10166	22nF 30% 16V
2564	4822 122 10166	22nF 30% 16V
2565	4822 122 10166	22nF 30% 16V
2566	4822 124 40433	47µF 20% 25V
2567	4822 124 40433	47µF 20% 25V

3550	4822 102 50056	3x10k 20% Potm LEVEL
3551		2x10k Potm BALANCE
3552	4822 050 22003	20k 1% 0,6W
3553	4822 050 22003	20k 1% 0,6W
3554	4822 050 28202	8k2 1% 0,6W
3555	4822 050 28202	8k2 1% 0,6W
3556	4822 050 24701	470Ω 1% 0,6W
3557	4822 050 24701	470Ω 1% 0,6W
3558	4822 050 24701	470Ω 1% 0,6W
3559	4822 050 24701	470Ω 1% 0,6W

6550	4822 130 34167	BZX79-C6V2
6551	4822 130 34167	BZX79-C6V2
6552	4822 130 34167	BZX79-C6V2
6553	4822 130 34167	BZX79-C6V2
7550	5322 209 86234	NE5532N
7551	5322 209 86234	NE5532N

CONTROL AND DISPLAY PANEL

Miscellaneous

	4822 256 91832	FTD HOLDER
	4822 255 41241	LED SOCKET
	4822 255 41241	LED SOCKET
	4822 255 41239	LED SOCKET
1802	4822 214 51772	RECEIVER GP1U521X
1804	4822 242 73654	RESONATOR
1805	4822 130 91052	DISPLAY BG-982Gk
1810	4822 276 13112	SWITCH,PUSHBUT.
1811	4822 276 13112	SWITCH,PUSHBUT.
1812	4822 276 13112	SWITCH,PUSHBUT.
1813	4822 276 13112	SWITCH,PUSHBUT.
1814	4822 276 13112	SWITCH,PUSHBUT.
1815	4822 276 13112	SWITCH,PUSHBUT.
1816	4822 276 13112	SWITCH,PUSHBUT.
1817	4822 276 13112	SWITCH,PUSHBUT.
1818	4822 276 13112	SWITCH,PUSHBUT.
1819	4822 276 13112	SWITCH,PUSHBUT.
1820	4822 276 13112	SWITCH,PUSHBUT.
1821	4822 276 13112	SWITCH,PUSHBUT.
1822	4822 276 13112	SWITCH,PUSHBUT.
1823	4822 276 13112	SWITCH,PUSHBUT.
1824	4822 276 13112	SWITCH,PUSHBUT.
1825	4822 276 13112	SWITCH,PUSHBUT.
1826	4822 276 13112	SWITCH,PUSHBUT.
1827	4822 276 13112	SWITCH,PUSHBUT.
1828	4822 276 13112	SWITCH,PUSHBUT.
1829	4822 276 13104	SWITCH,PUSHBUT.
1830	4822 276 13112	SWITCH,PUSHBUT.
1831	4822 276 13112	SWITCH,PUSHBUT.
1832	4822 276 13112	SWITCH,PUSHBUT.
1833	4822 276 13112	SWITCH,PUSHBUT.
1834	4822 276 13112	SWITCH,PUSHBUT.
1835	4822 276 13112	SWITCH,PUSHBUT.
1836	4822 276 13112	SWITCH,PUSHBUT.
1837	4822 276 13112	SWITCH,PUSHBUT.
1838	4822 276 13104	SWITCH,PUSHBUT.
1839	4822 276 13104	SWITCH,PUSHBUT.
1840	4822 276 13112	SWITCH,PUSHBUT.
1841	4822 276 13112	SWITCH,PUSHBUT.
1842	4822 276 13112	SWITCH,PUSHBUT.
1843	4822 276 13112	SWITCH,PUSHBUT.
1844	4822 276 13112	SWITCH,PUSHBUT.
1845	4822 276 13112	SWITCH,PUSHBUT.
1846	4822 276 13112	SWITCH,PUSHBUT.

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2805	4822 122 10166	22nF 30% 16V
2806	4822 124 22031	4µ7 20% 63V

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3800	4822 050 22203	22k 1% 0,6W
3801	4822 051 10101	100Ω 2% 0,25W
3802	4822 050 22203	22k 1% 0,6W
3803	4822 050 22203	22k 1% 0,6W
3804	4822 050 22203	22k 1% 0,6W
3805	4822 050 22203	22k 1% 0,6W
3806	4822 116 52217	270Ω 5% 0,5W
3807	4822 116 52217	270Ω 5% 0,5W
3808	4822 116 52217	270Ω 5% 0,5W
3809	4822 116 52217	270Ω 5% 0,5W
3810	4822 050 21002	1k 1% 0,6W
3811	4822 051 10101	100Ω 2% 0,25W
3812	4822 051 10101	100Ω 2% 0,25W
3816	5322 111 90473	10k 2% Res.Network
3817	5322 111 90473	10k 2% Res.Network
3818	4822 050 21002	1k 1% 0,6W
3820	4822 050 22204	220k 1% 0,6W
3821	4822 050 22203	22k 1% 0,6W
3822	4822 050 22203	22k 1% 0,6W
3823	4822 050 21002	1k 1% 0,6W
3824	4822 050 22203	22k 1% 0,6W
3825	4822 050 22203	22k 1% 0,6W
3826	4822 050 22203	22k 1% 0,6W

6800	4822 130 30621	1N4148
6801	4822 130 30621	1N4148
6802	4822 130 30621	1N4148
6803	4822 130 30621	1N4148
6804	4822 130 30621	1N4148
6805	4822 130 30621	1N4148
6806	4822 130 30621	1N4148
6807	4822 130 30621	1N4148
6808	4822 130 30621	1N4148
6809	4822 130 30621	1N4148
6810	4822 130 80849	TLHR4499
6811	4822 130 80849	TLHR4499
6812	4822 130 80849	TLHR4499
6813	4822 130 80849	TLHR4499
6102	4822 130 80848	TLGH4999
6501	4822 130 80848	TLGH4999
6816	4822 130 80849	TLHR4499
6817	4822 130 80849	TLHR4499
7800	4822 209 61191	TMP47C670N/1364
7801	4822 130 40938	BC548
7802	4822 130 40938	BC548
7803	4822 130 44197	BC558B
7804	4822 130 40938	BC548
7805	4822 209 60886	UDN-2580A
7806	4822 209 60886	UDN-2580A

2001	4822 124 42355	10µF 20% 50V
2002	4822 124 42355	10µF 20% 50V
2003	4822 121 51093	6,8nF 10% 63V
2004	4822 121 51093	6,8nF 10% 63V
2005	4822 126 10324	33pF 63V
2006	4822 126 10324	33pF 63V
2007	5322 121 42386	100nF 5% 50V
2008	5322 121 42386	100nF 5% 50V
2009	5322 121 42386	100nF 5% 50V
2010	5322 121 42386	100nF 5% 50V
2011	5322 121 42386	100nF 5% 50V
2012	5322 121 42386	100nF 5% 50V
2013	4822 124 42355	10µF 20% 50V
2014	4822 124 42355	10µF 20% 50V
2015	4822 124 42355	10µF 20% 50V
2016	4822 124 42355	10µF 20% 50V
2201	4822 124 42354	100µF 20% 16
2202	4822 124 42354	100µF 20% 16
2203	4822 124 42354	100µF 20% 16
2204	4822 124 42354	100µF 20% 16
2205	4822 122 32083	8,2pF 5% 63V
2206	4822 122 32083	8,2pF 5% 63V
2207	4822 122 32083	8,2pF 5% 63V
2208	4822 122 32083	8,2pF 5% 63V
2209	4822 122 31765	100pF 5% 63V
2210	4822 122 31765	100pF 5% 63V
2211	4822 122 31765	100pF 5% 63V
2212	4822 122 31765	100pF 5% 63V
2213	4822 124 42354	100µF 20% 16
2214	4822 124 42354	100µF 20% 16
2331	4822 124 42355	10µF 20% 50V
2332	4822 124 42355	10µF 20% 50V
2333	4822 124 42355	10µF 20% 50V
2334	4822 124 42355	10µF 20% 50V
2335	4822 122 31746	1nF 5% 63V
2336	4822 122 31746	1nF 5% 63V
2337	4822 124 42354	100µF 20% 16
2338	4822 124 42354	100µF 20% 16
2339	4822 121 70052	15nF 5% 63V
2340	4822 121 70052	15nF 5% 63V
2401	4822 124 42355	10µF 20% 50V
2402	4822 124 42355	10µF 20% 50V
2403	4822 124 42355	10µF 20% 50V
2404	4822 124 42355	10µF 20% 50V
2405	4822 124 42355	10µF 20% 50V
2406	4822 124 42355	10µF 20% 50V
2407	4822 124 42355	10µF 20% 50V
2408	4822 124 42355	10µF 20% 50V
2421	4822 124 42355	10µF 20% 50V
2422	4822 124 42355	10µF 20% 50V
2423	4822 124 42355	10µF 20% 50V
2424	4822 124 42355	10µF 20% 50V
2431	4822 124 42355	10µF 20% 50V
2432	4822 124 42355	10µF 20% 50V
2433	4822 124 42355	10µF 20% 50V
2434	4822 124 42355	10µF 20% 50V
2435	4822 124 42355	10µF 20% 50V
2436	4822 124 42355	10µF 20% 50V
2437	4822 124 42355	10µF 20% 50V
2438	4822 124 42355	10µF 20% 50V
2440	4822 124 42355	10µF 20% 50V
2441	4822 124 42355	10µF 20% 50V
2501	4822 124 42355	10µF 20% 50V

3001	4822 051 10103	10k 2% 0,25W
3002	4822 051 10103	10k 2% 0,25W
3003	5322 116 80427	1k 1% 0,125W
3004	5322 116 80427	1k 1% 0,125W
3005	4822 051 10109	10Ω 2% 0,25W
3006	4822 051 10109	10Ω 2% 0,25W
3013	4822 051 53302	3k3 1% 0,125W
3014	4822 051 53302	3k3 1% 0,125W
3015	4822 051 55101	510Ω 1% 0,125W
3016	4822 051 55101	510Ω 1% 0,125W
3017	4822 051 51203	12k 1% 0,125W
3018	4822 051 51203	12k 1% 0,125W
3019	4822 051 58203	82k 1% 0,125W
3020	4822 051 58203	82k 1% 0,125W
3021	4822 051 54702	4k7 1% 0,125W
3022	4822 051 54702	4k7 1% 0,125W
3023	4822 051 54703	47k 1% 0,125W
3024	4822 051 54703	47k 1% 0,125W
3027	4822 051 54701	470Ω 1% 0,125W
3028	4822 051 54701	470Ω 1% 0,125W
3033	4822 051 51802	1k8 1% 0,125W
3034	4822 051 51802	1k8 1% 0,125W
3035	4822 051 54703	47k 1% 0,125W
3036	4822 051 54703	47k 1% 0,125W
3037	4822 051 10829	82Ω 2% 0,25W
3201	4822 051 56803	68k 1% 0,125W
3202	4822 051 56803	68k 1% 0,125W
3203	4822 051 54703	47k 1% 0,125W
3204	4822 051 54703	47k 1% 0,125W
3205	4822 051 54703	47k 1% 0,125W
3206	4822 051 54703	47k 1% 0,125W
3207	4822 051 51503	15k 1% 0,125W
3208	4822 051 51503	15k 1% 0,125W
3209	4822 051 51503	15k 1% 0,125W
3210	4822 051 51503	15k 1% 0,125W
3211	4822 051 54702	4k7 1% 0,125W
3212	4822 051 54702	4k7 1% 0,125W
3213	4822 051 54702	4k7 1% 0,125W
3214	4822 051 54702	4k7 1% 0,125W
3215	4822 051 54702	4k7 1% 0,125W
3216	4822 051 54702	4k7 1% 0,125W
3217	4822 051 54702	4k7 1% 0,125W
3218	4822 051 54702	4k7 1% 0,125W
3219	4822 051 54703	47k 1% 0,125W
3220	4822 051 54703	47k 1% 0,125W
3331	4822 051 55602	5k6 1% 0,125W
3332	4822 051 55602	5k6 1% 0,125W
3333	4822 051 55602	5k6 1% 0,125W
3334	4822 051 55602	5k6 1% 0,125W
3335	5322 116 80427	1k 1% 0,125W
3336	5322 116 80427	1k 1% 0,125W
3337	5322 116 80445	4k7 1% 0,125W
3338	5322 116 80445	4k7 1% 0,125W
3339	4822 051 55602	5k6 1% 0,125W
3340	4822 051 55602	5k6 1% 0,125W
3341	4822 051 56803	68k 1% 0,125W
3342	4822 051 56803	68k 1% 0,125W
3343	4822 051 51503	15k 1% 0,125W
3344	4822 051 51503	15k 1% 0,125W
3345	5322 116 80445	4k7 1% 0,125W
3346	5322 116 80445	4k7 1% 0,125W
3347	4822 100 10875	2K2 20% Trimpot
3348	4822 100 10875	2K2 20% Trimpot
3349	4822 051 55101	510Ω 1% 0,125W
3350	4822 051 55101	510Ω 1% 0,125W

3351	4822 051 55101	510Ω 1% 0,125W
3352	4822 051 55101	510Ω 1% 0,125W
3401	4822 116 81207	47Ω 1% 0,4W
3402	4822 116 81207	47Ω 1% 0,4W
3403	4822 116 81207	47Ω 1% 0,4W
3404	4822 116 81207	47Ω 1% 0,4W
3405	4822 116 81207	47Ω 1% 0,4W
3406	4822 116 81207	47Ω 1% 0,4W
3407	4822 116 81207	47Ω 1% 0,4W
3408	4822 116 81207	47Ω 1% 0,4W
3409	4822 116 81207	47Ω 1% 0,4W
3422	4822 116 81207	47Ω 1% 0,4W
3423	4822 116 81207	47Ω 1% 0,4W
3424	4822 116 81207	47Ω 1% 0,4W
3431	4822 116 81207	47Ω 1% 0,4W
3432	4822 116 81207	47Ω 1% 0,4W
3433	4822 116 81207	47Ω 1% 0,4W
3434	4822 116 81207	47Ω 1% 0,4W
3435	4822 116 81207	47Ω 1% 0,4W
3436	4822 116 81207	47Ω 1% 0,4W
3437	4822 116 81207	47Ω 1% 0,4W
3438	4822 116 81207	47Ω 1% 0,4W
3501	5322 116 80426	100Ω 1% 0,125W
3502	4822 116 81198	15k 1% 0,125W
3503	5322 116 80429	100k 1% 0,125W
3504	4822 051 10274	270k 2% 0,25W
3505	5322 116 80446	47k 1% 0,125W
3506	5322 116 80438	330Ω 1% 0,125W

5000	4822 280 20495	REEDRELAIS LM44E
5001	4822 280 20495	REEDRELAIS LM44E
5301	4822 148 81219	TRANSFORMER TO 1351 4010
5302	4822 148 81219	TRANSFORMER TO 1351 4010
5501	4822 280 20495	REEDRELAIS LM44E

6005	4822 130 30621	1N4148
6006	4822 130 30621	1N4148
6501	4822 130 30621	1N4148
6502	4822 130 30621	1N4148
6503	4822 130 30621	1N4148
7005	4822 209 63706	LM833M
7006	4822 209 63706	LM833M
7009	4822 209 63706	LM833M
7010	4822 209 63706	LM833M
7201	4822 209 63706	LM833M
7202	4822 209 63706	LM833M
7331	4822 209 30803	NE5532 SO
7332	4822 209 30803	NE5532 SO
7501	4822 209 81397	TL431 CLP

HEADPHONE PANEL

2580	5322 124 21762	100µF 20% 10V
2581	5322 124 21762	100µF 20% 10V
2582	5322 124 21711	100µF 20% 25V
2583	5322 124 21711	100µF 20% 25V

3580	4822 051 10101	100Ω 2% 0,25W
3581	4822 051 10101	100Ω 2% 0,25W
3582	4822 102 10398	10k 20% LOG
3584	4822 050 21203	12k 1% 0,6W
3585	4822 050 21203	12k 1% 0,6W
3586	4822 116 52264	27k 5% 0,5W
3587	4822 116 52264	27k 5% 0,5W
3588	4822 052 10109	10Ω 5% 0,33W
3589	4822 052 10109	10Ω 5% 0,33W
3590	4822 051 10122	1k2 2% 0,25W
3591	4822 051 10122	1k2 2% 0,25W
3592	4822 050 21201	120Ω 1% 0,6W
3593	4822 050 21201	120Ω 1% 0,6W

7580	4822 130 40958	BC338-25
7581	4822 130 40958	BC338-25
7582	4822 209 82362	NJM4556D

Miscellaneous

1502	4822 276 11309	SWITCH,PUSHBUT. SDDL
2000	4822 126 10454	3,3nF 20% 400V
5001	4822 146 31048	TRANSFORMER UNIT

C 1	4822 124 41184	470µF 20% 50V
C 2	5322 124 22614	1000µF 20% 50V
C 3	4822 121 41856	22nF 5% 250V
C 4	4822 124 40207	100µF 20% 25V
C 5	4822 121 41856	22nF 5% 250V
C 6	4822 124 40207	100µF 20% 25V
C 7	4822 121 41856	22nF 5% 250V
C 8	4822 124 40207	100µF 20% 25V
C 9	4822 121 41856	22nF 5% 250V
C 10	4822 124 40207	100µF 20% 25V
C 11	4822 121 41856	22nF 5% 250V
C 12	4822 124 40207	100µF 20% 25V
C 13	4822 121 41856	22nF 5% 250V
C 14	4822 124 40207	100µF 20% 25V
C 15	4822 121 41856	22nF 5% 250V
C 16	4822 124 40207	100µF 20% 25V
C 17	4822 121 41856	22nF 5% 250V
C 18	5322 124 22229	1000µF 20% 35V
C 19	5322 121 42386	100nF 5% 63V
C 20	4822 124 80045	4700µF 20% 50V
C 21	4822 124 80045	4700µF 20% 50V
C 22	4822 124 80045	4700µF 20% 50V
C 23	4822 124 40255	100µF 20% 63V
C 24	4822 121 51252	0,47µF 5% 63V
C 25	4822 124 40244	2,2µF 20% 63V
C 26	5322 122 32818	2,2nF 10% 100V
C 27	5322 121 42489	33nF 5% 250V
C 28	5322 124 22614	1000µF 20% 50V
C 29	4822 122 32121	390pF 2% 100V
C 30	5322 121 42386	100nF 5% 63V
C 31	4822 124 41751	47µF 20% 50V
C 32	4822 124 80045	4700µF 20% 50V
C 33	4822 124 80045	4700µF 20% 50V
C 34	5322 124 22614	1000µF 20% 50V
C 35	4822 121 41856	22nF 5% 250V
C 36	4822 124 40246	4,7µF 20% 63V
C 60	4822 121 41856	22nF 5% 250V
C 61	4822 124 40255	100µF 20% 63V

D 1	4822 130 82272	1N4004
D 2	4822 130 82272	1N4004
D 3	4822 130 82272	1N4004
D 4	4822 130 82272	1N4004
D 5	4822 130 82272	1N4004
D 6	4822 130 82272	1N4004
D 7	4822 130 82272	1N4004
D 8	4822 130 82272	1N4004
D 9	4822 130 82272	1N4004
D 10	4822 130 82272	1N4004
D 11	4822 130 82272	1N4004
D 12	4822 130 82272	1N4004
D 13	4822 130 82272	1N4004
D 14	4822 130 82272	1N4004
D 15	4822 130 82272	1N4004
D 16	4822 130 82272	1N4004
D 17	5322 130 34464	1N4448

D 18	5322 130 32677	1N5822
D 19	5322 130 34464	1N4448
D 20	4822 130 82272	1N4004
D 21	4822 130 82272	1N4004
D 22	4822 130 82272	1N4004
D 23	4822 130 82272	1N4004
D 24	5322 130 34464	1N4448
D 32	5322 130 34464	1N4448
D 33	5322 130 34464	1N4448
D 34	4822 130 82272	1N4004
D 35	4822 130 82272	1N4004
DV 1	4822 130 30682	BZX79B9V1
DV 2	4822 130 31981	BZX79B3V9
DV 3	4822 130 34174	BZX79B4V7
DZ 1	5322 130 50399	B40C3700/2200
DZ 2	5322 130 34962	B40C5000/3300

IC 2	5322 209 81236	LM337KC
IC 3	5322 209 81236	LM337KC
IC 4	4822 209 80591	LM317SP
IC 5	4822 209 80591	LM317SP
IC 6	4822 209 80591	LM317SP
IC 7	5322 209 81236	LM337KC
IC 8	5322 209 81236	LM337KC
IC 9	5322 209 70292	L296
IC10	4822 209 30987	MC34160

L 1	4822 158 10879	TOR. CHOKE 250µH
L 2	4822 158 10878	TOR. CHOKE 72µH

Q 1	4822 130 41096	BC550C
Q 2	4822 130 41096	BC550C
Q 3	4822 130 41096	BC550C
Q 4	4822 130 61755	BC560C
Q 5	4822 130 41096	BC550C
Q 7	4822 130 41096	BC550C

R 4	4822 050 23902	3k9 1% 0,6W
R 5	4822 050 26801	680Ω 1% 0,6W
R 6	4822 050 26802	6k8 1% 0,6W
R 7	4822 050 21502	1k5 1% 0,6W
R 8	4822 050 26802	6k8 1% 0,6W
R 9	4822 050 26801	680Ω 1% 0,6W
R 11	4822 050 22201	220Ω 1% 0,6W
R 12	4822 050 21001	100Ω 1% 0,6W
R 13	4822 050 22201	220Ω 1% 0,6W
R 14	4822 050 21001	100Ω 1% 0,6W
R 15	4822 050 21001	100Ω 1% 0,6W
R 16	4822 050 21002	1k 1% 0,6W
R 17	4822 050 21001	100Ω 1% 0,6W
R 18	4822 050 21001	100Ω 1% 0,6W
R 20	4822 050 11502	1k5 1% 0,6W
R 21	4822 050 21001	100Ω 1% 0,6W
R 22	4822 050 21002	1k 1% 0,6W
R 24	4822 050 25603	56k 1% 0,6W
R 25	4822 050 22201	220Ω 1% 0,6W
R 26	4822 050 26801	680Ω 1% 0,6W

R 27	4822 116 83594	R-PTC 0,75A 60V
R 28	4822 116 83594	R-PTC 0,75A 60V
R 29	4822 116 83593	R-PTC 1,6A 50V
R 30	4822 116 83593	R-PTC 1,6A 50V
R 31	4822 050 24702	4k7 1% 0,6W
R 32	4822 050 25605	5M6 1% 0,6W
R 33	4822 050 24703	47k 1% 0,6W
R 34	4822 050 11004	100k 1% 0,6W
R 35	4822 050 24302	4k3 1% 0,6W
R 36	4822 050 21503	15k 1% 0,6W
R 37	4822 050 21003	10k 1% 0,6W
R 38	4822 050 23902	3k9 1% 0,6W
R 40	5322 116 90018	0Ω
R 41	4822 050 21003	10k 1% 0,6W
R 42	4822 050 21504	150k 1% 0,6W

R 43	4822 050 21003	10k 1% 0,6W
R 44	4822 050 22203	22k 1% 0,6W
R 45	4822 050 24703	47k 1% 0,6W
R 46	4822 050 22203	22k 1% 0,6W
R 47	4822 050 22202	2k2 1% 0,6W
R 48	4822 050 22203	22k 1% 0,6W
R 64	4822 050 24704	470k 1% 0,6W
R 65	4822 050 22203	22k 1% 0,6W
R 66	4822 050 22403	24k 1% 0,6W
R 67	4822 050 21212	1k2 1% 0,6W

S 11	5322 209 81236	LM337KC

BS DAC PANEL

CD09	4822 126 12049	47nF 63V
CD10	4822 124 40433	47µF 20% 25V
CD11	4822 126 12049	47nF 63V
CD12	4822 126 12049	47nF 63V
CD13	4822 124 40433	47µF 20% 25V
CD14	4822 124 40433	47µF 20% 25V
CD15	4822 126 12049	47nF 63V
CD16	4822 126 12049	47nF 63V
CD17	4822 124 40433	47µF 20% 25V
CD18	4822 124 40433	47µF 20% 25V
CD19	4822 126 12049	47nF 63V
CD20	4822 126 12049	47nF 63V
CD21	4822 124 40433	47µF 20% 25V
CD22	4822 124 40433	47µF 20% 25V
CD23	4822 126 12049	47nF 63V
CD24	4822 126 12049	47nF 63V
CD25	4822 124 40433	47µF 20% 25V
CD26	4822 124 40433	47µF 20% 25V
CD31	4822 126 12042	39pF 2% 63V
CD32	4822 126 12042	39pF 2% 63V
CD33	5322 121 50999	470pF 1% 400V
CD34	5322 121 50999	470pF 1% 400V
CD35	4822 126 12042	39pF 2% 63V
CD36	4822 126 12042	39pF 2% 63V
CD37	5322 121 50999	470pF 1% 400V
CD38	5322 121 50999	470pF 1% 400V
C512	4822 124 40244	2,2µF 20% 63V
C523	4822 124 40433	47µF 20% 25V
C524	4822 126 12049	47nF 63V
C601	4822 121 51288	100pF 2% 630V
C602	4822 121 51288	100pF 2% 630V
C603	4822 121 51288	100pF 2% 630V
C604	4822 121 51288	100pF 2% 630V
C605	4822 121 43066	1nF 1% 400V
C606	4822 121 43066	1nF 1% 400V
C607	4822 121 51288	100pF 2% 630V
C608	4822 121 51288	100pF 2% 630V
C609	5322 122 31626	100pF 2% 500V
C610	5322 122 31626	100pF 2% 500V
C681	4822 124 41643	100µF 20% 16V
C682	4822 124 41643	100µF 20% 16V
C683	4822 124 41643	100µF 20% 16V
C684	4822 124 41643	100µF 20% 16V

QD01	4822 701 11933	SAA7350GP
Q511	4822 209 30264	SM5840FP
Q512	4822 209 30985	PST523C
Q601	5322 209 86234	NE5532N
Q602	5322 209 50602	NE5532N

RD09	4822 052 10478	4Ω7 5% 0,33W
RD10	4822 052 10478	4Ω7 5% 0,33W
RD11	4822 052 10478	4Ω7 5% 0,33W
RD12	4822 116 52261	24k 5% 0,5W
RD15	4822 050 21001	100Ω 1% 0,6W
RD16	4822 050 21001	100Ω 1% 0,6W
RD31	4822 050 24703	47k 1% 0,6W
RD32	4822 050 24703	47k 1% 0,6W
RD33	4822 050 24703	47k 1% 0,6W
RD34	4822 050 24703	47k 1% 0,6W
R512	4822 116 52234	100k 5% 0,5W
R513	4822 052 10478	4Ω7 5% 0,33W
R601	4822 050 28202	8k2 1% 0,6W
R602	4822 050 28202	8k2 1% 0,6W
R603	4822 050 28202	8k2 1% 0,6W
R604	4822 050 28202	8k2 1% 0,6W
R605	4822 050 29102	9k1 1% 0,6W
R606	4822 050 29102	9k1 1% 0,6W
R607	4822 050 29102	9k1 1% 0,6W
R608	4822 050 29102	9k1 1% 0,6W
R609	4822 050 25602	5k6 1% 0,6W
R610	4822 050 25602	5k6 1% 0,6W
R611	4822 050 27502	7k5 1% 0,6W
R612	4822 050 27502	7k5 1% 0,6W
R613	4822 050 25602	5k6 1% 0,6W
R614	4822 050 25602	5k6 1% 0,6W
R615	4822 116 52175	100Ω 5% 0,5W
R616	4822 116 52175	100Ω 5% 0,5W
R681	4822 052 10479	47Ω 5% 0,33W
R682	4822 052 10479	47Ω 5% 0,33W
R683	4822 052 10479	47Ω 5% 0,33W
R684	4822 052 10479	47Ω 5% 0,33W